
State of Alaska Coastal Impact Assistance Program Competitive Grant Program End of Year Report

**Prepared by
Department of Commerce, Community
& Economic Development
Division of Community Advocacy**

Submitted to
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Office of Project Management & Permitting
and
National Oceanic and Atmospheric Administration
Office of Ocean and Coastal Resource Management

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STATE OF ALASKA

COASTAL IMPACT ASSISTANCE PROGRAM COMPETITIVE GRANT PROGRAM

END OF YEAR REPORT JANUARY 15, 2006

Prepared by:

**Department of Commerce, Community & Economic Development
Division of Community Advocacy**

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Program Overview

The State of Alaska Coastal Impact Assistance Program (CIAP) Competitive Grant Program is one of several Alaskan projects that received funding through the federal Coastal Impact Assistance Program. The Department of Commerce, Community and Economic Development (DCCED) administers the CIAP Competitive Grant Program through a Reimbursable Services Agreement with the Department of Natural Resources. The CIAP Competitive Grant Program received \$3.1 million of Alaska's total CIAP appropriation. The solicitation and review process for grant awards was completed in June 2002 and fifty-six grants were subsequently awarded at a total of \$3,094,593. The grant awards range from \$13,770 to \$100,000.

Alaska's CIAP competitive grant projects are located throughout the state, from Barrow, at the state's northernmost point, to Ketchikan on Alaska's southeastern "panhandle". The grants fall into a variety of project categories, including:

- habitat restoration
- land acquisition
- education and community outreach
- coastal access improvements
- management tools
- project planning and design
- infrastructure and public works
- erosion control
- waste and debris removal
- data collection and research

During State Fiscal Year 2005, the Department of Natural Resources Office of Project Management and Permitting requested that NOAA approve an extension of Alaska's CIAP Program to June 30, 2006. This allowed fifteen of the CIAP competitive grants to extend project completion dates beyond the original June 30, 2005 deadline. As a result, fifty-five of the original fifty-six awarded grants will successfully be completed.

At the writing of this report, forty-three of the original fifty-six grants have resulted in successfully completed projects. Only one grant for a summer school program which failed to generate sufficient registrants was closed out with no activity. The remaining twelve projects will be completed by June 30, 2006. There are no new projects or significant changes to scopes of work. The only grant amendments necessary were minor project or budget changes that did not affect the scope of work or project deliverables.

The products of the completed grants include:

- Restoration of 250 feet of riparian habitat along the Naknek River in King Salmon.
- Development of orthophoto maps of the Nome Coastal Management District and purchase of an ArcView GIS system to enhance the City of Nome's future planning efforts.
- Marine debris removal from fur seal haulouts and rookeries on St. Paul and St. George Islands in the Pribiloff archipelago in Southwestern Alaska.
- Replacement of an undersized culvert, floodplain reconstruction, and removal of excess channel material to make 22 miles of stream accessible to juvenile fish at Silver Salmon Creek on the Kenai Peninsula.
- Environmental Sensitivity Index (ESI) hardcopy atlases and digital databases for the Western Alaska and Bristol Bay sub-areas as defined by the Alaska Federal/State Unified Plan for Oil Spill Preparedness and Response.

- Construction of an elevated, light-penetrating ADA-approved walkway, revegetation of streambank, and installation of an interpretive display on streambank restoration at Ship Creek in Anchorage.
- Expansion of the ShoreZone mapping program in the Gulf of Alaska to include shorelines along Afognak and northern Kodiak Islands.
- Construction of an elevated walkway and viewing platform and restoration of the riverbank along the Gulkana River in Southcentral Alaska.
- Construction of a light-penetrating fishing platform with ADA-access along the Little Susitna River in the Matanuska-Susitna Valley.
- Restoration of 9,000 feet of estuarine trail at the Sea Lion Cove State Marine Park on North Kruzof Island in Southeast Alaska.
- Renovation and expansion of the Imaginarium's marine science exhibit in Anchorage.
- Acquisition of a high-priority wetland within the Fish Creek watershed for preservation as a city park in Anchorage.
- A study of the impacts of human activities, particularly sport fishing, on bear access to sockeye salmon in Wolverine Creek Cove within the Redoubt Bay Critical Habitat Area.
- Education of youth and community on the effects of northern pike on salmon and trout populations in Southcentral Alaska, and restoration of critically damaged areas near Daniel's Creek on the Kenai Peninsula

Project status reports of the twelve active grant projects are provided in the first section of this report, "Active Projects". Project status reports of the forty-four completed projects follow, grouped by the year in which the project was completed and by project category. Project photos, where available, are included on the page following each project status report. A CD-ROM with photos of the completed projects is included with this report.

Active Projects

HABITAT RESTORATION PROJECTS

- Duck Creek Stream Restoration
- Willow Creek Streambank Restoration

EDUCATION AND COMMUNITY OUTREACH PROJECTS

- Watershed Connections-Enhancing School District Curricula
- Contaminant and Nutrient Ecology
- Enhancement of Sheldon Jackson Environmental Science Program

COASTAL ACCESS IMPROVEMENTS PROJECTS

- Miller Point Marine Observation Station
- Caribou Hills Streambank Protection

MANAGEMENT TOOLS PROJECTS

- Lake and Peninsula Borough: Community Profile Mapping
- Deep Creek and Anchor River Off-Road Vehicle (ORV) Impact Assessment and Mitigation Strategy
- Anchorage Bowl Coastal Resource Atlas Project

INFRASTRUCTURE AND PUBLIC WORKS PROJECTS

- Homer Beach Protection Policy Implementation

EROSION CONTROL AND SHORELINE STABILIZATION PROJECTS

- Nelson Lagoon Coastal Protection Project

Habitat Restoration Projects

- **Duck Creek Stream Restoration**
- **Willow Creek Streambank Restoration**

Duck Creek Stream Restoration

Grant Number: 1GA-36
Grant Encumbrance Number: 831415
Applicant Name: Southeast Alaska Guidance Association
Project Status: Active
Estimated time to Completion: 6 months

Description and Purpose: This project involves the re-channelization, reconstruction, and revegetation of a portion of Duck Creek; improvement of water quality through sediment removal and cleaning of stream gravel; and the execution of a survey of participants to measure increased knowledge of stream ecology. The project focuses on areas of the stream that cannot be reached by large machines without causing additional damage to the streambank. Southeast Alaska Guidance Association's Serve Alaska Youth Corps (SAYC), a partner in the restoration of Duck Creek over the past five years, is completing the project.

Type and Acreage of Habitat Restored: The project area comprises .375 mile of Duck Creek, a small, anadromous fish stream located in the Mendenhall Valley near Juneau, Alaska. The Duck Creek Watershed drains into one of Southeast Alaska's major estuarine wetlands. The Alaska Department of Environmental Conservation currently lists Duck Creek as an impaired water body. Environmental problems include pollution from urban runoff, poor water quality, altered flow regimes and degraded habitat. Despite its impairment, the watershed still provides the Juneau community with beneficial and often essential resource values, including storm drainage and flood control, fish and wildlife habitat, recreation and opportunities for aquatic education. Currently, the total amount of stream reconfiguration for this project is 700 feet and the total amount of bank backfilling is 500 feet.

Location of Habitat: Duck Creek is located in the Mendenhall Valley, Juneau, Alaska. Township 40S, Range 66E., Juneau B-2, CRM, Section 18, City and Borough of Juneau. Juneau lies at approximately 58.30194° North Latitude and -134.41972° West Longitude. (Sec. 23, T041S, R067E, Copper River Meridian.)

Accomplishments to Date: All site work on Duck Creek was finished in November 2004. During the past year, several off-site tasks were completed, including acknowledgement of the sponsors and donations that have helped to make the project a success as well as to inform the local populace about the project. An on-site marker was designed, constructed and installed.

The request for a budget and work program amendment was approved to allow for an as-built survey that will provide a reference point to determine which types of restoration work were most effective over time. The anticipated closeout date for this project is June 2006.

Submitted Work Products:
Monthly and quarterly reports
Project photos (next page)

Duck Creek Restoration Photos



Adding fill to stream bank



Preparing coir-type logs



Streambank restoration



Placing coir-type logs



Preparing for planting



Planting dogwood

Willow Creek Streambank Restoration

Grant Number: 3GA-136
Grant Encumbrance Number: 831424
Applicant Name: Matanuska-Susitna Borough
Project Status: Active
Estimated time to completion: Six months

Description and Purpose: The Willow Creek Streambank Restoration Project involves the stabilization of the Willow Creek stream bank, construction of a 360-foot elevated, light-penetrating walkway (with educational signs), and the installation of protective fencing at the Willow Creek State Recreation Area.

Type and acreage of habitat restored: The mitigation resulting from this project enhances and protects 600 feet of wetland along Willow Creek and 6 feet behind the creek. A total of 3600 square feet have been enhanced and protected.

Willow Creek is a clear water tributary of the Susitna River. The stream originates in the Talkeetna Mountains, on the north side of Hatcher Pass and flows to its mouth on the Susitna River near Willow, Alaska. Salmonids spawning and rearing in Willow Creek include Chinook, Coho, pink, and chum salmon; Dolly Varden, rainbow trout, and arctic grayling. Burbot and slimy sculpin are also present in the river. The middle and lower reaches of Willow Creek provide diverse habitat for a variety of wildlife species including harlequin duck, bald eagle, osprey, moose, and black and brown bear. Willow Creek is an important contributor to the East Susitna River tributary.

Fishing pressure on Willow Creek is high. Lands adjacent to the outlet of Willow Creek at the Susitna River are owned by the Matanuska-Susitna Borough and are managed by the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. Streambanks adjacent to the campground, along the mouth of Willow Creek, have been severely impacted by intense recreational use. It is estimated that during the busy fishing season, as many as 600 people per hour utilize the area at the mouth of Willow Creek. Prior to the commencement of this project, nearly all of the riparian vegetation had been removed and streambank soils were seriously compacted. Several areas were undercut and were collapsing into the channel. There was little or no cover for juvenile fishes due to lack of riparian vegetation and streamflows at nearly all levels are mobilizing sediment from the exposed banks.

Location of Habitat: The project site is Matanuska-Susitna Borough Property adjacent to Willow Creek, T20N, R5W, Section 34. Palmer, the closest city, lies at approximately 61.59972° North Latitude and -149.11278° West Longitude. (Sec. 04, T017N, R002E, Seward Meridian.)

Accomplishments to Date: The grand opening for the Willow Creek Walkway was held on October 5, 2005. The Matanuska-Susitna Borough requested an extension to the grant to June 30, 2006 to allow more time for the vegetation contract to be completed during the 2006 growing season.

Submitted Work Products:
Monthly and quarterly reports
Project photos (next page)

Willow Creek Streambank Restoration Photos



Aerial view of project site



Walkway construction



Building walkway



Measuring corners

Education and Community Outreach Projects

- **Watershed Connections-Enhancing School District Curricula**
- **Contaminant and Nutrient Ecology**
- **Enhancement of Sheldon Jackson Environmental Science Program**

Watershed Connections-Enhancing School District Curricula

Grant Number: 20GA-148

Grant Encumbrance Number: 830185

Applicant Name: University of Alaska Environmental and Natural Sciences Institute

Project Status: Active

Estimated time to Completion: 6 months

Description and Purpose: The purpose of this project is to integrate science-based environmental monitoring tools into existing Anchorage School District curricula at the middle school level. Program activities include the dissemination of techniques to teachers that will address nonpoint source pollution, increase public awareness about watershed connections to coastal resources, and support local water monitoring efforts. The project focuses on supporting watershed concept study areas for grades 6 through 8 by incorporating Alaska Stream Team methods into existing science curricula. Follow-up technical training and support is being provided to all of the schools during the grant period. The long-term goal is to systematically 1) increase teacher awareness and use of these easy and effective scientific methods for environmental education; 2) involve classrooms in relevant local issues; 3) improve school science content understanding by using practical science applications; and 4) promote the expansion of school-based monitoring programs in coastal communities.

Accomplishments to Date: The completion date for this project has been extended to June 30, 2006 to allow the University of Alaska Environmental and Natural Resources Institute (ENRI) to carry out additional Alaska Stream Team (AST) workshops. Two AST workshops were held in September; the first was held on September 23 & 24 at the Kachemak Bay Campus of UAA in Homer, Alaska. Seven people attended the workshop; five are teachers in Homer, one works for Cook Inlet Keeper, and one works for the National Park Service. Six of the seven participants signed up for a one-hour continuing education credit for the class. The workshop was publicized through the Kachemak Bay Environmental Education Alliance, with the help of Terry Thompson from the Kachemak Bay Research Reserve and Carol Swartz from the UAA Kachemak Bay Campus. Another workshop was held the following weekend in Anchorage, on September 30 and October 1. Eleven participants attended this workshop; seven teach in the Anchorage School District, three teach in the Mat-Su Borough School District, and one works on the education staff at the Imaginarium in Anchorage. Nine of the eleven participants registered for a one hour continuing education credit for the class. Participants in the second workshop will be reconvening on the evening of October 20 to share experiences and learn about the AST on-line database. ENRI staff traveled to Wasilla on September 26 and made a brief presentation at an in-service for middle school science teachers. During the month of October, ENRI staff finished the fall workshop for the Anchorage School District, and had a follow-up session with participants on October 20. At that session, teachers discussed how they have used or plan to use AST methods and materials in their classes. Teachers were also introduced to the on-line database set up for teachers to use once they have collected data with their students. Final evaluations from that workshop are attached. ENRI staff also conducted an in-service training for Mat-Su Borough high school science teachers on October 17. The session lasted three hours and introduced teachers to AST methods. ENRI staff also began the process of transferring the AST education level on-line database to a server at UAA at the request of the Alaska Department of Environmental Conservation. During the month of December, ENRI worked with two people who went through the Alaska Stream Team (AST) training in Sitka (June 2005), and helped them enter their data onto the AST on-line database.

Submitted Work Products:

Monthly and quarterly reports

Watershed Connections—Enhancing School District Curricula Photos



Sampling in steep creek—Juneau



Workshop participants collecting stream invertebrates



Sorting invertebrates



Sorting invertebrates



Sorting invertebrates—Kenai Peninsula Borough



Dept. of Environmental Conservation Presentation

Contaminant and Nutrient Ecology

Grant Number: 32GA-01
Grant Encumbrance Number: 831421
Project Status: Active
Estimated time to Completion: 6 months

Description and Purpose: North Slope Borough is developing a lay-language assessment of present scientific data regarding contaminants (oil industry-based hydrocarbons, persistent organic pollutants, and heavy metals) versus the nutrients (essential fatty acids and elements) present in subsistence food. The project will produce educational material such as bilingual brochures, films (videocassette), and reports that summarize available data from local sources (wildlife contaminants research) and international initiatives (i.e., Arctic Monitoring and Assessment Program) and provide this information to impacted village residents. Project deliverables include a common language (English, and Inupiaq summary) report based on scientific manuscripts, a brochure (English and Inupiaq), a video (English and Inupiaq).

Accomplishments to Date: The completion date for this project has been extended to June 30, 2006. North Slope Borough (NSB) students continue to work on video re-edits and to review report draft materials. The NSB plans to work through the Barrow Whaling Captains Wives or a similar organization to review and finalize draft. The project manager plans to schedule a trip to Nuiqsut in January or February to meet with a specialist on fish contaminants. The program manager presented a PowerPoint presentation on current on-going local fish contaminants study to NSB Fish and Game Committee (fish hydrocarbon study). This information will be included in this project's contaminants communication report. Committee members critiqued the presentation and added their input on how to make the reporting better. A packet of newly published North Slope contaminants and nutrients information was provided to the local health care manager for her review. The program manager met with two Barrow High School students to assist with planning of Science Fair projects related to on going department projects on fish and fox. Both projects involve some aspect of contaminants and nutrient ecology.

Submitted Work Products:

Monthly and quarterly progress reports
Project photos (next page)

Contaminant and Nutrient Ecology Photos



Testing food samples



Testing food samples



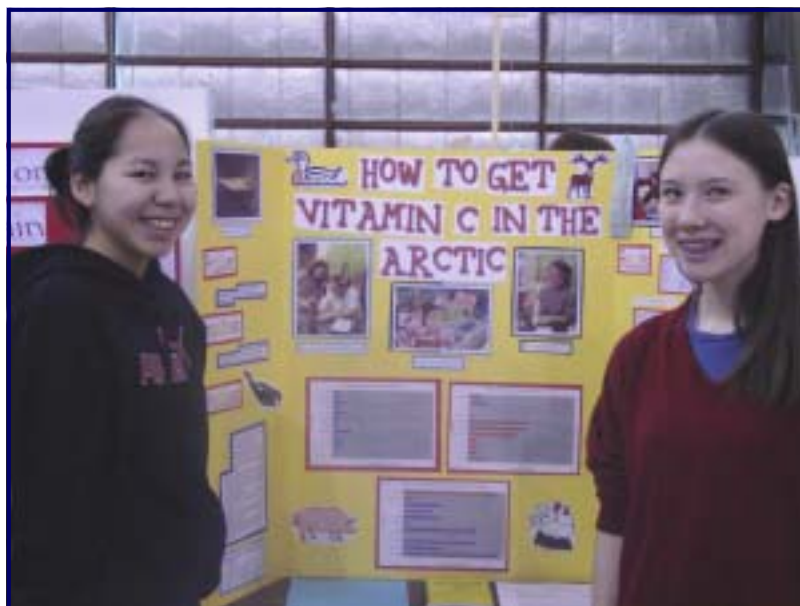
Blending subsistence food samples



Reading the display at the State Science Fair



Being questioned by judges



Enhancement of Sheldon Jackson Environmental Science Program

Grant Number: 51GA-50
Applicant Name: Sheldon Jackson College
Grant Encumbrance Number: 831405
Project Status: Active
Estimated time to Completion: 6 months

Description and Purpose: The purpose of this project is to improve the marine laboratory facility at Sheldon Jackson College's Environmental Science Program. The project involves the construction of a new aquarium that simulates a rocky, near-shore environment and a spawning channel/salmon egg incubation observatory. This will complete the facility, which already houses three touch-tables and a six-wall aquarium. When in full operation, this project will provide educational opportunities to all people of Sitka and Southeast Alaska.

Accomplishments to Date: This project has been extended to June 30, 2006 to allow for completion of a few finishing touches on the facility. The 800-gallon aquarium is fully functioning. It has been filled and tested and now holds rocks and fauna corresponding to a sea pinnacle. A collection of rockfish now reside in the aquarium, providing a replica of a saltwater ecosystem. Support for the aquarium tank was installed beneath the floor in order to assure safety in light of the substantial weight of the tank's contents. Pump backup and final plumbing have been installed to assure continuous operation of the aquarium tank. Collection materials and tools to clean, feed, and service have been obtained.

Submitted Work Products:

Monthly and quarterly reports

A copy of an article from the local newspaper shows the installation of the tank.

Project photos (next page)

Enhancement of Sheldon Jackson Environmental Science Program Photos



Aquaria



Touch tanks in front of the aquaria



Glass aquarium



Aquarium with king crab



King crab inside aquarium



Coastal Access Improvements Projects

- **Miller Point Marine Observation Station**
- **Caribou Hills Streambank Protection**

Miller Point Marine Observation Station

Grant Number: 12GA-40
Applicant Name: Alaska Department of Natural Resources, Parks Division
Grant Encumbrance Number: 830181
Project Status: Active
Estimated time to Completion: 6 months
Type of Access Improvement: An outdoor marine observatory at Miller Point, Kodiak Island
Project Location: Miller Point is located within Fort Abercrombie State Historical Park on the northeastern shore of Kodiak Island. Kodiak Island is located on the eastern side of the Gulf of Alaska. It lies at approximately 57.78333° North Latitude and -152.4° West Longitude.

Description and Purpose: The objective of this project is to construct a multi-sensory, outdoor marine observatory at Miller Point, a popular recreational destination, emphasizing whale-viewing. The project will provide construction materials, hardware, equipment, and labor to produce a live audio listening station from an underwater hydrophone, high quality interpretive displays, and an observation logbook. Sights and sounds captured by the hydrophone (and future video camera) will be observable beyond the immediate site in locations such as local schools and the park visitor center. The educational panels will provide information on marine mammal identification, habitat, conservation, and regulations. The project will foster knowledge and appreciation by the casual viewer of Alaska's coastal resources, be of great benefit to the educational community, and add to the body of knowledge of researchers.

Accomplishments to Date: The completion date of this project has been extended to June 30, 2006. Due to difficulties in installing the underwater hydrophone, the scope of work was amended to allow for acquisition and reconstruction of a porpoise skeleton for a whale exhibit. A frozen harbor porpoise carcass was donated by the National Marine Fisheries Service to re-articulate and go on permanent display at the Ft. Abercrombie State Historical Park Visitor Center. The display will contribute to the overall marine mammal theme by providing a reduced scale version of a whale for exhibit (since porpoise skeletons are very similar to whales.) Bone cleaning will be performed by volunteers. The work will be contracted to reconstruction specialist. The porpoise will be hung from the ceiling and include general interpretive information.

Submitted Work Products:
Monthly and quarterly progress reports
Project photos (next page)

Miller Point Marine Observation Station Photos



The Dall's porpoise skeleton, rearticulated for the whale exhibit at Fort Abercrombie State Historical Park



New interpretive panels and informational bulletin board kiosk at Miller Point on Kodiak Island.

Caribou Hills Streambank Protection

Grant Number: 18GA-103
Applicant Name: Caribou Hills Cabin Hoppers
Grant Encumbrance Number: 831394
Project Status: Active
Estimated time to Completion: 6 months
Type of Access Improvement: Bridge crossings over drainages in the Ninilchik River watershed

Project Location: The project includes four trails located near the village of Ninilchik. Ninilchik lies on the western coast of the Kenai Peninsula on the Sterling Highway, 38 miles southwest of the City of Kenai, and 188 road miles from Anchorage. The community lies between mileposts 119 and 144 of the Sterling Highway; the business center has developed between Ninilchik River and Deep Creek. It lies at approximately 60.05139° North Latitude and -151.66889° West Longitude. (Sec. 34, T001S, R014W, Seward Meridian.) Ninilchik is located in the Homer Recording District.

Description and Purpose: The Caribou Hills Cabin Hoppers, through this grant to the Kenai Peninsula Borough, will build one large bridge and four small bridges over drainages in the Ninilchik River watershed that have been damaged from off-road vehicle use. Project deliverables include a steel-framed bridge with a wooden deck across the Ninilchik River at the intersection with the 126 Trail, and;
2. Four small steel frame/wood deck bridges, varying between 6 and 12 feet, to cross streams in the Crooked Creek and Ninilchik River drainages.

Accomplishments to Date: This project has been amended to extend the project completion date due to difficulties the Grantee has had with obtaining necessary permits for placement of the Ninilchik River Bridge. The main issue is the lack of formal easements on the trails in this area; however there are also concerns with the lack of a formal trailhead on the 126 trail, as well as the weight-bearing capacity of the bridge, which was converted from a flatbed trailer. The trails within the project area cross land held by several public and private owners, including ADNR, University of Alaska, Cook Inlet Region, Inc. (CIRI), and Ninilchik Native Association. The Caribou Hills Cabin Hoppers will remove the 126 Trail Bridge from its current location and relocate it to a new stream crossing, along with placement of two of the smaller bridges. All three proposed bridge locations will be close to one another, crossing tributaries of Deep Creek. The project will be completed by June 30, 2006.

Submitted Work Products:
Monthly and quarterly reports
Project photos

Management Tools Projects

- **Lake and Peninsula Borough: Community Profile Mapping**
- **Deep Creek & Anchor River ORV Impact Assess. & Mitigation Strategy**
- **Anchorage Bowl Coastal Resource Atlas Project**

Lake and Peninsula Borough: Community Profile Mapping

Grant Number: 10GA-33
Grant Encumbrance Number: 831399
Applicant Name: Lake and Peninsula Borough
Project Status: Active
Estimated time to Completion: 6 months

Description and Purpose: This project involves the update of community profile maps for the cities and villages of the Lake and Peninsula Borough. The mapping will enhance the Borough's ability to enforce the existing Coastal Zone Management, Subdivision, Development Permit and Land and Resources Ordinances. The grant request is for phase one of a two-phase project. Phase one will include updating the community profile maps for the southern half of the borough. The product produced will be community profile mapping of cities and villages within the borough. The information will be used for future planning of the community and to avoid impacts to the coastal environment.

Accomplishments to Date: Phases I and most of Phase II of this project have been completed, with the mailing of the final community profile maps for the villages of Levelock, Egegick, Pilot Point, Ugashik, Port Heiden, Chignik Lake, Chignik Bay, Chignik Lagoon, Perryville and Ivanoff Bay. Each community received printed and CD-ROM copies of the community profile maps.

Phase II of the project was delayed due to contractual problems with the on-ground survey verifications in some of the communities. The contractor traveled to Igiugig in August to resurvey and rectify the errors on property located on the North side of the Kvichak River and the road right-of-way near the landfill, which is not correct. The problem in Igiugig was the result of satellite errors the day the contractor was in the field getting data by GPS and recording the location of property parcels. In addition, some easements and road corridor easements for the Williamsport Pile Bay road had not yet been confirmed. All other communities have been completed with this exception. The project will be complete by June 30, 2006.

Submitted Work Products:

Monthly and quarterly progress reports

Copies of the completed community profile maps, on file with the Alaska Department of Commerce, Community and Economic Development, Division of Community Advocacy in Anchorage.

Deep Creek and Anchor River Off-Road Vehicle (ORV) Impact Assessment and Mitigation Strategy

Grant Number: 19GA-143

Grant Encumbrance Number: 830174

Applicant Name: Alaska Dept of Natural Resources, Division of Parks

Project Status: Active

Estimated time to Completion: 6 months

Description and Purpose: The Alaska Department of Natural Resources (ADNR) is collaborating with the Alaska Department of Fish and Game (ADF&G) on this project, whose objective is the development of a comprehensive plan for the location of Off-Road Vehicle trails on the lower Kenai Peninsula. A trail plan provides the blueprint for future work to reroute trails out of wetlands and design appropriate stream crossings to reduce the impact to riparian habitats. A collaborative process will be conducted to identify alternative routes to the upper Deep Creek and Anchor River watersheds that meet the access needs of the users while reducing wetland and stream impacts from ORV use. Key stakeholders include the Kenai Peninsula Borough, landowners, ORV users, and other backcountry recreational users. The final product of this project is a trail plan with specific recommendations and priorities. The trail plan will be a blueprint that will include recommendations for 1) relocating trails; 2) appropriate trail improvements through wetland areas; 3) suitable stream crossing designs; and 4) restoration techniques to mitigate existing ORV damage.

Accomplishments to Date: The completion date for this project has been extended to June 30, 2006. Between July and September 2005, ADF&G staff made two attempts to complete mapping (with a survey-grade GPS receiver/data-logger) at the extreme end of Watermelon Trail where it meets the Ninilchik Dome Trail. Unfortunately, weather precluded completion of this task. ADF&G staff are evaluating alternative methods to complete the field portion of the project in the spring of 2006.

Submitted Work Products:

Monthly and quarterly reports

Anchorage Bowl Coastal Resource Atlas Project

Grant Number: 44GA-123
Applicant Name: Municipality of Anchorage
Grant Encumbrance Number: 831420
Project Status: Active
Estimated time to Completion: 6 month

Description and Purpose: As part of its Coastal Management Plan update, the Municipality of Anchorage will implement a two-part project: 1. Mapping, in Geographic Information System (GIS) format, of the Anchorage Bowl's current land use, roads and utilities, slope, streams/waterbodies/tidal boundaries, soils, floodplains/wetlands, fish/wildlife habitats, seismic areas, and land cover. 2. The production of sensitivity index (critical habitat identification) using resource-modeling software. Project deliverables include a CD-ROM with GIS data in open formats and PDF files, and a set of hard-copy maps.

Accomplishments to Date: The grant work program was amended to extend the completion date to the end of January 2005. To date, Municipality of Anchorage (MOA) staff received GIS training and education for preparation of the updated atlas. Aeromap, U.S. was selected as the vendor to complete the atlas professional services. A draft, first version of a computer (GIS) model for the coastal resources impact was developed using ArcGIS. The model was presented to stakeholders last summer for their review and approval. Draft maps for all themes were completed. MOA coordinated with USGS and other agencies to get appropriate data for the Atlas. USGS is obtaining updated seismic and hazard data. EPA is working on wetlands and other environmental data. MOA Wetland Management Service is working on other environmental data. Testing has been conducted of LIDAR data for suitability with the Atlas.

Submitted Work Products:

Quarterly reports
Modeling Guidelines Draft

Infrastructure and Public Works Projects

- **Homer Beach Protection Policy Implementation**

Homer Beach Protection Policy Implementation

Grant Number: 50GA-85
Applicant Name: City of Homer
Grant Encumbrance Number: 831426
Project Status: Active
Estimated time to Completion: 6 months

Project Location: The project involves the beaches along Homer Spit associated with the Critical Habitat Area of Kachemak Bay. Homer is located on the north shore of Kachemak Bay on the southwestern edge of the Kenai Peninsula. The Homer Spit, a 4.5-mile long bar of gravel, extends from the Homer shoreline. It is 227 road miles south of Anchorage, at the southern-most point of the Sterling Highway. It lies at approximately 59.6425° North Latitude and -151.54833° West Longitude. (Sec. 19, T006S, R013W, Seward Meridian.) Homer is located in the Homer Recording District.

Description and Purpose:

This project involves the funding of a variety of recommendations from the City of Homer's Beach Policy Task Force, including improving beach access points, providing informative and advisory signs, and reporting on beach topography and habitats.

Project Product include:

1. Creation of a formal parking area preventing vehicular access to the beaches, thus preventing degradation and facilitating growth of flora.
1. Regulatory signs to educate the public about city ordinances designed to protect beaches, tidelands and contiguous submerged land from waste or injury.
2. Study of sediment transportation along the western side of the Homer Spit. Data will be collected through the installation of a tower with cameras for the recording of sediment transport conditions. Data collection will take place over a 3-5 year period and result in a report describing sediment transfer mechanisms that create and maintain storm berms and the beach environment.
3. A report and GIS maps of the ecology of Homer's coastal environments.

Accomplishments to Date: The grant work program was amended to extend the project completion date. All deliverables for this project have been completed with the exception of the final ecological report. To date, the City of Homer has acquired Coastal Project and Alaska Department of Fish and Game habitat permits necessary for this project. Boulders were strategically placed to delineate limited parking areas preventing vehicular access to the beaches to prevent degradation and facilitate growth of flora. Regulatory signs educating the public about city environmental ordinances were ordered and installed. A tower with cameras to record sediment transport conditions along to the west of Homer Spit was installed and made operational. The physical inter-tidal habitat mapping is complete. Historical aerial photography of the coastline has been obtained and rectified. The locations of the eroding coastline are being mapped and erosion rates are being determined along Kachemak Bay within the Homer City limits. The salt marsh areas have been relative to the plant community. All fieldwork is complete and the final ecological report will available in spring 2006. The project will be completed on June 30, 2006.

Submitted Work Products:

Monthly and quarterly reports
Project photos (next page)

Homer Beach Protection Policy Implementation Photos

Boulders delineating new parking area and preventing vehicular access to the beach



Newly installed regulatory signs educating the public about city environmental ordinances



Erosion Control and Shoreline Stabilization Projects

- **Nelson Lagoon Coastal Protection Project**

Nelson Lagoon Coastal Protection Project

Grant Number: 29GA-149
Applicant Name: Aleutians East Borough
Grant Encumbrance Number: 831403
Project Status: Active
Estimated time to Completion: 6 months

Location of Project: Nelson Lagoon is located on the northern coast of the Alaska Peninsula, on a narrow sand spit that separates the lagoon from the Bering Sea. It is 580 miles southwest of Anchorage. It lies at approximately 56.00194° North Latitude and -161.20278° West Longitude. (Sec. 25, T048S, R077W, Seward Meridian.) Nelson Lagoon is located in the Aleutian Islands Recording District.

Description and Purpose: The goal of this project, proposed by the Aleutians East Borough, is to protect and restore the natural features of the Nelson Lagoon shoreline while developing a model for erosion control that may be effective for other coastal communities within Alaska. A 600-foot test section of engineered shoreline protection will be constructed and the effectiveness of this means of protecting and restoring natural coastal features will be documented.

Accomplishments to Date: The completion date for this project has been amended to June 30, 2006. Last summer, equipment was rented from Alaska Pump in Anchorage for the installation of the Geo Tubes. The Geo Tubes were transported to Homer from Anchorage via Carlisle Transportation, and then barged to Nelson Lagoon. Based on an erosion assessment performed in 2003, the decision was made to move the project to an unprotected section of eroding shoreline adjacent to the Nelson Lagoon public dock. This new project site has been identified as “light industrial” and will be home to all economic development related to seafood processing. Homeowners with property near the project site were notified of the proposed project. A beach transect survey was completed and the final design for the Geo Tubes is almost finished. The report detailing a desktop investigation, which highlights critical areas of shoreline erosion, was completed.

Submitted Work Products:

Monthly and quarterly reports

Report covering the desktop investigation, baseline surveying and conceptual engineering

Projects Completed in 2005

HABITAT RESTORATION PROJECTS

- **WILLOW CREEK STREAMBANK RESTORATION**
- **SWIFTWATER CREEK FISH PASSAGE & HABITAT IMPROVEMENTS**
- **COHO SALMON RESTORATION OF THE KAMETOLOOK RIVER**
- **POTATO PATCH LAKE: HABITAT RESTORATION AND EDUCATION**

EDUCATION AND COMMUNITY OUTREACH PROJECTS

- **AMPHIBIAN MONITORING IN SE ALASKA THROUGH EDUCATIONAL PARTNERSHIPS**
- **COASTAL WATERSHED EDUCATION AND RESTORATION**
- **SCIENCE OF THE SOUND**
- **ALASKA COASTAL ECOLOGY TRAVELING EDUCATION PROGRAM**
- **FAMILY CENTERED COASTAL & WATERSHED EDUCATION PROGRAM**
- **RON LARSON ELEMENTARY ENVIRONMENTAL STEWARDSHIP FOR YOUTH**
- **A MODEL FOR REGIONALLY INTEGRATED ENVIRONMENTAL EDUCATION**
- **COASTAL WATERSHED EDUCATION AND STEWARDSHIP**
- **WASILLA HIGH WATERSHED INQUIRY PROJECT**
- **ALASKAN COASTAL EDUCATION PLAN**
- **MONASHKA CREEK HUMAN IMPACT MONITORING**
- **BRISTOL BAY SALMON CAMP**
- **CULTURAL/CONSERVATION EDUCATION CAMP**

MANAGEMENT TOOLS PROJECTS

- **DEEP CREEK & ANCHOR RIVER ORV IMPACT ASSESS. & MITIGATION STRATEGY**
- **ATV TRAIL MAPPING AND ASSESSMENT**
- **MAPPING INTERTIDAL HABITATS**
- **MAT-SU BOROUGH: GIS MAPPING OF COASTAL ZONE WATERSHED**

PROJECT PLANNING AND DESIGN PROJECTS

- **CRC: NATURAL RESOURCE & NATIVE HISTORY
INTERPRETATION PLANNING PROJECT**

INFRASTRUCTURE AND PUBLIC WORKS PROJECTS

- **SWAN LAKE REHABILITATION AND ENHANCEMENT PROJECT**

Habitat Restoration Projects

- **Swiftwater Creek Fish Passage & Habitat Improvements**
- **Coho Salmon Restoration of the Kametolook River**
- **Potato Patch Lake: Habitat Restoration and Education**

Swiftwater Creek Fish Passage & Habitat Improvements

Grant Number: 11GA-100
Applicant Name: Matanuska-Susitna Borough
Grant Encumbrance Number: 831406
Project Status: Complete
Estimated time to Completion: Closed out

Location of Habitat: Swiftwater Creek is a tributary of the Little Susitna River. Palmer, the closest city, is located in the center of the lush farmlands of the Matanuska Valley, 42 miles northeast of Anchorage on the Glenn Highway. It lies at approximately 61.59972° North Latitude and -149.11278° West Longitude. (Sec. 04, T017N, R002E, Seward Meridian.) Palmer is located in the Palmer Recording District.

Type and Acreage of Habitat restored: The Little Susitna River is a significant producer of fish stocks and is currently a troubled fishery. According to the Alaska Department of Fish and Game, Swiftwater Creek traditionally supports Coho Salmon, Dolly Varden, Rainbow Trout and possibly Chum Salmon. This project will result in the restoration of Swiftwater Creek and adjacent stream banks at the Sitze Road crossing. Eliminating the barrier to fish passage will significantly enhance fish resources by enabling Cohoes, Dollies and Rainbows to access an expansive area of undetermined acreage.

Description and Purpose: The objective of this project was the restoration of a juvenile fish passage in Swiftwater Creek which was blocked by several perched culverts at the Sitze Road crossing. This creek, a tributary of the Little Su, traditionally supports Cohoes, dollies, and rainbows and possibly chums. The project, designed to be a model for inter-agency cooperation, also served to prevent illegal stream crossings and pollution from all-terrain vehicles. Because the project involved the construction of a modular bridge rather than a bridge that is constructed on-site, the experience gained provided valuable information for major fish blockage projects as a more time-efficient and cost-effective approach. The project included the replacement of three culverts with a bridge of less than 60 feet, stream bank stabilization, and bioremediation of the stream bank along the Swiftwater Creek at Sitze Road.

Accomplishments to Date: This project was successfully completed on October 21, 2005. The completion date of the project was amended to allow additional time during the summer construction season for work to be completed. During the past year, the restoration plan was included in the State of Alaska Division of Forestry Student Intern work plan and the Matanuska-Susitna Borough was awarded a 2005 Celebrating Habitat - Celebrating Partner Award by the US Fish & Wildlife Service for the Culvert & Stream Restoration Program. The Swiftwater Creek - Sitze Road Bridge Project was one of the numerous sites restored as part of this program. The construction work resumed in June after seasonal weight restrictions were removed and most construction work was completed over the course of the summer. The project area was hydro seeded after construction was completed. The Swiftwater Creek-Sitze Road Bridge Project was dedicated on August 23, 2005.

Submitted Work Products:

Quarterly and monthly progress reports
Final report
Project photos

Swiftwater Creek Fish Passage & Habitat Improvements Photos



Delivery of modular bridge to project site



Modular bridge



Different views of bridge

Coho Salmon Restoration of the Kametolook River

Grant Number: 26GA-42
Grant Encumbrance Number: 831419
Applicant Name: Bristol Bay Native Association
Project Status: Complete
Estimated time to Completion: Closed out

Location of habitat: Perryville is located on the south coast of the Alaska Peninsula, 275 miles southwest of Kodiak and 350 miles southwest of Anchorage. It lies at approximately 55° 54' N Latitude, 159° 09' W Longitude (Sec. 27, T049S, R064W, Seward Meridian). The community is located in the Aleutian Islands Recording District.

Type and acreage of habitat restored: Perryville is a coastal fisheries-dependent community. Seasonal, commercial salmon fishing provides nearly all the cash income to the 107 village residents, who rely on marine resources for subsistence, such as salmon, other fish, marine vertebrates, and marine mammals. Historically, the Kametolook River has produced most of the late salmon subsistence harvest for Perryville residents. During the last decade, however, the Kametolook Coho salmon run has been a failure and has not responded to rebuilding efforts. An overriding problem is the lack of spawning salmon in the fishery.

Description and Purpose: The purpose of this project was to identify and use disease-free, alternate brood stock for restoration of the Kametolook River Coho run. Biological training of the local students was included as part of the project, and the village people and professional fisheries staff worked together for the mutual goal of restoring a traditional fish run and maintaining local self-sufficiency.

Accomplishments to Date: This project was successfully completed in February 2005. The CIAP grant goal of identifying and potentially using an alternative Coho stock for Kametolook restoration was achieved. The 2003 samples collected from the Coho salmon escapements in Smokey Hollow, Wasco, and Ivan Rivers have established the baseline disease and genetic information required for alternative brood-stock consideration. In the event of a diminished Kametolook Coho run (highly unlikely now chiefly due to local and other safeguards including those established through the CIAP grant) brood stock used from these systems are a clear option. In addition to the successful completion of the tasks listed in the grant agreement, the project team noted that: (1) Education and public awareness of the importance of the Kametolook River Coho run has been increased; (2) Practical tools and methods for Perryville Village residents to achieve the best feasible production and local protection have been identified and clearly communicated; (3) Good local participation such as the 2004 hands-on restoration work by many Perryville Village residents and numerous volunteer school-students was achieved; and (4) The Perryville village council has shown that they have the will and knowledge to achieve full restoration of the Kametolook River.

Submitted Work Products:

Quarterly progress and financial reports
Final report
Project photos (next page)

Coho Salmon Restoration of the Kametolook River Photos



Project team



Flooded egg boxes



Functioning egg boxes



On the river

Potato Patch Lake: Habitat Restoration and Education

Grant Number: 36GA-49
Grant Encumbrance Number: 831416
Applicant Name: City of Kodiak
Project Status: Complete
Estimated time to Completion: Closed out

Location of habitat: The project site is located in the City of Kodiak just off Rezanof Drive and Ismailov Street along the edge of Potato Patch Lake. The City of Kodiak is located near the eastern tip of Kodiak Island in the Gulf of Alaska, 252 air miles south of Anchorage. It lies at approximately 57.78889° North Latitude and -152.4019° West Longitude. (Sec. 32, T027S, R019W, Seward Meridian.) Kodiak is located in the Kodiak Recording District. The area encompasses 3.5 sq. miles of land and 1.4 sq. miles of water.

Type and acreage of habitat restored: Potato Patch Lake is a wetland habitat that flows into Shahafka Cove on the east of Kodiak Island. The lake supports waterfowl, salmon, other fish and land mammals. Potato Patch Lake currently receives drainage from the streets and storm drains of approximately one-third of the City of Kodiak. Runoff flows into the lake, carrying petrochemicals from roadways, as well as other contaminants and particulate matter.

Description and Purpose: The objective of this project was to construct and install an oil-water separator to insure proper filtration of contaminated run-off, which was currently draining into Potato Patch lake from Kodiak streets through a culvert. Once the separator was installed and functioning properly, a boardwalk was built on the western edge of the lake for the purpose of allowing the public to view ducks, geese, swans and other birds that frequent the area. With continuous use and maintenance of the separator, the quality of water entering and leaving the lake will be improved for the foreseeable future, thereby restoring habitat in both the lake and adjacent coastal environments. The boardwalk provides an avenue for increasing public awareness of the beauty and value of migratory and resident waterfowl/wildlife by affording visitors an opportunity to observe waterfowl and wildlife in a natural setting, with maximum safety and minimum impact.

Accomplishments to Date: This project was successfully completed in June 2005. Bids for construction of the project were opened on Friday, March 18, 2005. The Kodiak City Council approved award of the project to Red Hook Construction. Construction was commenced in April 2005, when the manhole for the 54" culvert was constructed and the new 54" culvert, which diverts the flow to the upper pond, was installed. The lower pond was excavated to depth and the spillway excavation is in progress. The usable soils from the excavations were used to construct the downhill dike. Following excavation of the upper pond, installation of the water control structures, and completion of the downhill dike, the new storm drains in the street were installed. By May 2005, the project was largely complete with the exception of a few punch list items. The storm drain flow was diverted through the settling ponds. As a result, the discharge into Potato Patch Lake has no visible turbidity. The construction activity did not appear to disturb the ducks. Ducks landed in the dry settlement ponds anytime equipment wasn't running. Soon thereafter, the ducks made use of the new wet areas and as the project photos show, even sleeping on the bare dike.

Submitted Work Products:

Monthly and quarterly reports
Final report
Draft Potato Patch Lake Master Plan Report
Project photos (next page)

Potato Patch Lake: Habitat Restoration and Education Photos



Upper pond in foreground; Potato Patch Lake in background.



Upper pond (above);



Lower pond (below)



Mallard resting on dike, Potato Patch Lake in background

Land Acquisition Projects

- **Conserving Accreted Land Adjoining the Mendenhall Refuge**

Conserving Accreted Land Adjoining the Mendenhall Refuge

Grant Number: 39GA-73
Grant Encumbrance Number: 831413
Applicant Name: Southeast Alaska Land Trust
Project Status: Complete
Estimated time to Completion: Closed out

Location of Land Acquired: Located on the mainland of Southeast Alaska, opposite Douglas Island, Juneau was built at the heart of the Inside Passage along the Gastineau Channel. It lies at approximately 58.30194° North Latitude and -134.41972° West Longitude. (Sec. 23, T041S, R067E, Copper River Meridian.) Juneau is located in the Juneau Recording District.

Acreage and type of land: Tideland within and adjacent to the Mendenhall Wetlands State Game Refuge has risen in elevation over the years due to the effects of nature. Since the refuge was formed in 1976, the land has risen over one foot. Because of the gentle slope of the land, literally hundreds of acres of land within the refuge have risen to the extent they are no longer considered tidelands. If a property's boundaries adjacent to the refuge are determined by the meander line, the landowner may obtain quiet title to these "accreted" lands from the State of Alaska. The accretion is no longer part of the refuge and the protected area of the refuge is reduced. Development pressures in and around the refuge are increasing and threaten valuable wildlife habitat and community recreation area.

Information on ownership: A complete landowner database for the subject land adjacent to the Mendenhall Wetlands State Game Refuge was one of the deliverables of this project.

Projected use of land: Land will be placed in conservation easements or given other protective status.

Description and Purpose: The purpose of this project was to place accreted coastal wetlands and estuaries in and adjacent to the Mendenhall Wetlands State Game Refuge in protective status through the use of conservation easements or other conservation measures. Deliverables of this project included a complete landowner database for lands adjacent to the refuge, a map of accreted lands and habitat types, an assessment of habitat and wetland functions for conservation prioritization, conservation options brochures and press releases regarding the project.

Accomplishments to date: The completion date for this project was amended to October 31, 2005 and the project was successfully completed by mid-October. The Southeast Alaska Land Trust (SEATrust) had previously acquired a landowner database for the project, completed mapping the lands and habitats of the Mendenhall Wetlands, developed an assessment of the relative habitat values, aggregated the available data into a GIS system, and developed an information brochure entitled "Accreted lands, A Special Case for Southeast Alaska". The Trust also helped develop a pamphlet, published by the Department of Fish and Game (ADFG), which gives a simple explanation of iso-static rebound and its long-term implications for the Mendenhall Wetlands State Game Refuge. The pamphlet directs landowners interested in conservation options to contact the SEATrust. The project was delayed by several legal questions that the SEATrust identified in consultation with its partners, ADFG, and lawyers working on behalf of the Trust. The SEATrust actively worked with individual landowners upland from the Mendenhall Wetlands State Game Refuge who are in some stage of filing for their accreted lands. Once resolution was reached on key questions regarding ownership rights, informational public meetings were hosted by interested landowners surrounding the refuge. The meetings served to inform the residents of the geophysical process of accretion. Glaciologists and SEATrust Board member, Roman Motyka, presented on accretion processes and rates and implications for the Mendenhall wetlands database. Most participants are interested in providing "fees-in-lieu of mitigation" to the SEATrust to continue work on accreted lands. It is anticipated that this could become a substantial source of funding for completing the conservation of accreted lands in the Mendenhall Refuge. The SEATrust notes that the products created under this grant have contributed to the resolution of coastal development issues related to the major airport expansion project nearby.

Submitted Work Products:

Monthly and quarterly progress reports, Final report

GIS Mapping for Mendenhall Wetland State Game Refuge by Discovery Southeast for the Southeast Alaska Land Trust

EDUCATION AND COMMUNITY OUTREACH PROJECTS

- Amphibian Monitoring in SE Alaska through Educational Partnerships
- Coastal Watershed Education and Restoration
- Science of the Sound
- Alaska Coastal Ecology Traveling Education Program
- Family Centered Coastal & Watershed Education Program
- Ron Larson Elementary Environmental Stewardship for Youth
- A Model for Regionally Integrated Environmental Education
- Coastal Watershed Education and Stewardship
- Wasilla High Watershed Inquiry Project
- Alaskan Coastal Education Plan
- Monashka Creek Human Impact Monitoring
- Bristol Bay Salmon Camp
- Cultural/Conservation Education Camp

Amphibian Monitoring in Southeast Alaska through Educational Partnerships

Grant Number: 4GA-11
Applicant Name: Juneau School District
Grant Encumbrance Number: 831418
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to document the presence of amphibians in Southeast Alaska, identify habitat conservation issues, and investigate the possible causes of amphibian declines. Grant funds would provide an education specialist with a strong biology background to develop curriculum for students at the upper elementary and middle school grade levels. The project had the potential to reach over 4000 4th-8th grade students in 16 districts and 54 schools throughout Southeast Alaska. Project deliverables included 100 copies of printed, tested curriculum materials tied to the state and national education standards and distributed to teachers throughout Southeast Alaska; a page on the Fish and Game web site, linked to school districts, where student research has been posted and may be posted; contact information for a network of scientists and elders willing to share expertise with students; technical assistance to at least fifteen classrooms or student groups, to implement the curriculum and begin collecting data; and a plan for continued funding for implementation of the curriculum and ongoing student research.

Accomplishments to Date: This project was successfully completed in June 2005. During the first part of the year, Anne Post completed work on the Amphibian Curriculum Project. She worked on the web-accessible curriculum at <http://www.wildlife.alaska.gov/education/amphib.cfm>, so that each section can now be downloaded and printed by anyone who would like to use it. A web page has also been created on the Fish and Game website at <http://www.sf.adfg.state.ak.us/region1/amphib/amphib.cfm>. A link has been established to the Alaska Wood Frog Monitoring project to allow students to participate in collection of scientific data. An original intent of the project was to allow students to collect data on the presence of amphibians and to share it with scientists. However, as the project progressed it became apparent that disturbance to sensitive amphibian habitat was a concern. The curriculum teaches specific protocols for collecting data on habitat, however. Contact information for a network of scientists and elders willing to share expertise with students has been posted on the web site and included with the curricula. Technical assistance was and remains available to classrooms and student groups, to implement the curriculum. Anne developed a Powerpoint presentation for use in classrooms and did extensive outreach in order to help teachers implement the curriculum. Anne did work in one Juneau classroom and four in Kokhanak to assist teachers in using the curriculum. She provided teacher training to ten teachers on the curriculum as part of a wilderness institute in June. Outreach efforts include contacts with district personnel, the Alaska Homeschool Association, Discovery Southeast Naturalists, the Alaska Natural Resources and Outdoor Education Association, and a statewide "herps" listserve. The Juneau School District plans to seek continued funding for implementation of the curricula and ongoing student research.

Submitted Work Products:
Monthly and quarterly reports
Project photos (next page)
Final Report

Amphibian Monitoring in Southeast Alaska through Educational Partnerships Photos

Various Southeastern Alaskan amphibians



Coastal Watershed Education and Restoration

Grant Number: 5GA-122
Grant Encumbrance Number: 831398
Applicant Name: Wasilla Soil and Water Conservation District
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The objective of this project was the design of a coastal watershed curriculum for Matanuska-Susitna Borough students that culminated in restoration projects along priority and at-risk coastal waterways in the Mat-Su valley. Program deliverables included the development of modular kits for watershed and restoration curricula and the completion of shoreline restoration in the Matanuska-Susitna Valley.

Accomplishments to Date: This project was successfully completed in November 2005. The completion date of the project had previously been extended to accommodate additional project work. During the past year, efforts to educate students and the Matanuska-Susitna Borough community regarding conservation issues continued in earnest. Wasilla Soil and Water Conservation District (WSWCD) staff worked in classrooms of several schools in the Matanuska-Susitna Valley. Extensive time was spent with students covering groundwater, surface water, hydrology and aquatic macro-invertebrates. In the spring, WSWCD staff met with third through eighth grade students at Midnight Sun Elementary School on two different days in preparation for the Swiftwater Creek Restoration Project in May. WSWCD staff met with students and parents at the same school for a “Science Night” where we worked with kids at stations concentrating on streamside macro-invertebrates at one station and H2O Olympics at another station. WSWCD staff worked with 5th Grade Snowshoe Elementary students to prepare them for stream site restorations planned for May 17 and 18. Two Teeland Middle School science students spent time in the WSWCD office learning about water monitoring and macro-invertebrates as preparation for a national science competition in Illinois.

Project dates for restoration and streamside studies were finalized. Cooperative planning with borough, state agencies, and local contractors continued as we approach the restoration phase of our program. WSWCD staff spent two days training Mat-Su district teachers at their district wide in-services on Sept. 26th and Oct. 17th. A total of 18 staff hours were spent completing in-service training involving use of our Enviroscope model, our groundwater display kit, conducting macro-invertebrate research with elementary students, and Project Wet activities. 40 district teachers attended WSWCD trainings, and several had WSWCD staff visit their classrooms to assist in working with students in these areas following the in-services. In September, WSWCD staff completed a “check dam” construction project along Crocker Creek with 5th grade students from Goosebay Elementary School. This project consisted of having students build 2 rock dams downstream from an undersized road culvert that had eroded its streambed over the years until there was a 12 inch waterfall at its mouth. This waterfall prevented salmon and Dolly Varden fry and smolts from migrating through the entire watershed to find preferred rearing habitat. WSWCD staff worked with several agency specialists and permitting offices to get approval for the project and the students completed the work in a single day on site. 23 students, several parent volunteers, WSWCD staff and others worked in the stream and created a more navigable passage for fish. The WSWCD partnered with the Nature Conservancy to bring together community members at a Wasilla District Watershed Coalition meeting in October to discuss area watershed concerns. The meeting was attended by 24 community members, some of whom had helped with projects funded by CIAP (Cottonwood Creek and Crocker Creek restorations).

Submitted Work Products:

Monthly and quarterly reports; Final Report
Project photos (next page)

Coastal Watershed Education and Restoration Photos



Chemical monitoring along Upper Lucy Creek



Pulling a minnow trap from Upper Lucy Creek



Cutting vegi-mat for stream bank restoration



Spruce revetments being placed in Cottonwood Creek for bank stabilization



Gathering aquatic micro-invertebrates prior to restoration



Students learning the finer points of check-dam construction

Science of the Sound

Grant Number: 7GA-25
Applicant Name: Prince William Sound Science Center
Title of Project: Science of the Sound
Type of Project: Education and Community Outreach
Grant Encumbrance Number: 831402
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to expand the youth education efforts of the Prince William Sound Science Center. This expansion involved increasing the educational contact hours of the program, “Science of the Sound”; integrating the Discovery program with community programming efforts; creating portable curriculum kits for use by staff, community members, and other community groups; and providing funding for one full-time educator position.

Accomplishments to Date: The work program for this grant was amended to extend the completion date to March 1, 2005. The project was successfully completed in March. In the Discovery Room, programs continued to teach the elementary students about salmon. In January, students studied the components of salmon habitat, and in February students learned about different interactions between salmon and humans, including cultural, fishing, and habitat interactions. During both months, 10 students from 4-6 grade participated in the outdoor salmon habitat monitoring program that has occurred on a monthly basis throughout the school year. In January, all students were introduced to the different components of habitat and were able to identify items necessary for healthy salmon habitat, including clear cool water and bank vegetation and roots for shelter. Students were also introduced to the different parts of a watershed and all classes built their own salmon habitat diorama. The 4-6 grade students practiced graphing data that they had collected in their salmon habitat monitoring study. During the month of February, students explored different ways humans interact with salmon. One room focused on how salmon are incorporated into different cultures through art and storytelling and all students made a fish print to take home. The students were also able to explore a variety of ways used to catch fish and were able to handle models of a traditional fish wheel and fish trap. All students were introduced to the concept of erosion and helped to brainstorm ways, such as planting bank vegetation, to improve human encroachment on salmon habitat. A total of 9 Community Programs were held in the interval from January to March, 1. These programs included exploring the beautiful microscopic art of nature seen in snow flakes and ice crystals, an astronomy program, how tsunamis are formed and the effects they can have on communities, how to view sunspots through a special telescope filter, Alaska cetaceans, a bird identification walk, the history of sharks for the last 40 million years as well as specific species of sharks found in Alaska, the Copper River Delta mudflats (picture attached). In February 27, 29 people gathered to watch the Cordova High School Science Bowl team present their research on climate change and how it will affect the socio-economics of Cordova. Student winners from the local Science Festival also presented their prize-winning demonstrations and projects. Final materials and information for portable curriculum guides, or Discovery Packs, were collected and the final Geology pack were put together. There is now a set of packs that cover the following topics: geology, tracking, plant identification, bird identification, and intertidal ecology.

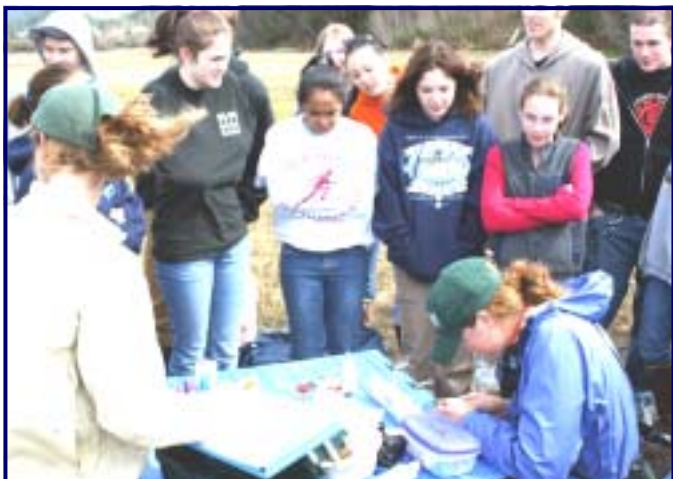
Submitted Work Products:

Monthly and quarterly progress reports
Final Report
Project photos (next page)

Science of the Sound Photos



Students sifting through mud



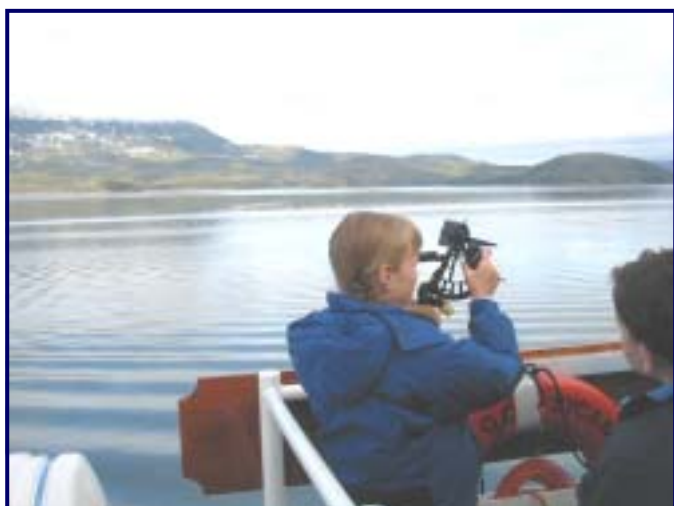
Students watching biologist work on bird



On board USCG Sycamore



On board USCG Sycamore



Using a sextant on USCG Sycamore



Looking through microscope — Earth Day Festival

Alaska Coastal Ecology Traveling Education Program

Grant Number: 14GA-68
Applicant Name: Center for Alaskan Coastal Studies
Grant Encumbrance Number: 831401
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to expand the seasonal Alaska Coastal Ecology, Onboard Oceanography, and Coastwalk programs with a school-year traveling program that extended and enhanced the learning that occurs during school field trips to Kachemak Bay marine, intertidal, wetland, and forest environments. Objectives were to increase teacher and student participation in coastal education and monitoring activities that occur in classrooms, on guided field trips, and during after-school programs; to provide preparation to teachers and students to benefit from coastal field trip experiences and to conserve the intertidal and wetland communities they are visiting; and to extend field trip experiences into more in-depth knowledge and appreciation of Alaska's coastal environments. A project objective was to reach 700 students and their teachers in fifteen Kenai Peninsula schools through this traveling program. Two copies each of program kits developed as part of this project, the "Alaska's Changing Coasts" and the "Alaska's Changing Oceans", were made available for loan throughout Alaska. The Peterson Bay Field Station has been established as a coastal monitoring site.

Accomplishments to Date: This project was successfully completed in March 2005. The project objectives for the Alaska Coastal Ecology (ACE) Traveling Program was to reach 700 students and teachers in 15 Kenai Peninsula schools, including 25 students in the villages of Seldovia, Nanwelek, and Port Graham; and additional students via after school programs at the Pratt Museum and Homer Boys and Girls Club. The ACE traveling program more than accomplished these objectives. The traveling program reached 1035 students and teachers in 16 Kenai Peninsula schools. Multiple programs were provided in the villages of Seldovia, Nanwelek, and Port Graham over the course of the project, reaching a total of 66 students and teachers in the three villages at least once, and a total of 171 participants in all of the programs combined. Production of education kits included "Alaska's Changing Coasts", "Alaska's Changing Oceans", and "Gulf of Alaska Coast Watch Activity Guide", which can be viewed and downloaded from the Center's website at <http://www.akcoastalstudies.org>. The CACS program coordinator worked full-time as the project's Naturalist/Environmental Educator to plan and deliver the traveling coastal education program through after-school program groups, naturalist visits to classrooms, and guided outdoor field trips. The CACS naturalist participated in a community Wisdomkeeper workshop in Port Graham which was sponsored by the Exxon Valdez Oil Spill Trustee Council and the Port Graham Tribal Council. The CACS Peterson Bay Field Station was established on the southern side of Kachemak Bay. Two coastal monitoring training workshops were co-sponsored with the Kachemak Bay Research Reserve in April and May. A coastal monitoring curriculum and online database was designed. An outline for the contents of a coastal education kit was developed and some contents for the kits have been purchased. Training associated with this project included participation in the North American Association for Environmental Education conference in Anchorage and a Marine Biodiversity Education Training sponsored by the World Wildlife Fund. The development and delivery of this program was coordinated with "A Model for Regionally Integrated Environmental Education" (CIAP Competitive grant # 830182) in which CACS is a partner.

Submitted Work Products:
Monthly and quarterly reports
Final report
Project Photos (next page)

Alaska Coastal Ecology Traveling Education Photos



Family Centered Coastal & Watershed Education Program

Grant Number: 31GA-138
Applicant Name: Human Resources Adult Education Center
Grant Encumbrance Number: 831422
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to design, test, and implement a series of science education modules focusing upon Alaska's coastal and watershed environments. The curriculum was designed for preschoolers with their parents (or preschool teacher) as the teacher. The curriculum was to be disseminated through the Headstart and Family Literacy Programs, eventually reaching an estimated 7,000 children, parents, and early childhood teachers over two years. The end results of this project included a written curriculum filed with the Alaska Department of Education, field test results of the curriculum, presentation of curriculum at four statewide professional conferences targeted toward preschool/elementary and literacy teachers, dissemination of the modules to at least 26 sites, including the state's 17 Headstart programs, and on-going technical support and training to any institution using the curriculum.

Accomplishments to Date: This project was successfully completed in August 2005. The Human Resources Adult Education Center (HRC) developed educational modules that were tested in communities in Arctic and Southcentral Alaska. The completed modules cover concepts about the water cycle of Arctic and Southcentral Alaska ponds and bogs. The curriculum includes group activities such as tabletop and outdoor games. Teacher's Resource Guides were completed in December. "Alaska's Marshes and Bogs: Dewey's Trip to the Great Water" was distributed at child abuse conference in the Matanuska-Susitna Valley, Anchorage and Juneau. The custom module requirement was completed through trips to Bethel and Valdez focusing on the unique water environment that exists in these areas.

Submitted Work Products:

Monthly and quarterly reports
Final Project; copy of program curriculum
Project photos

Ron Larson Elementary Environmental Stewardship for Youth

Grant Number: 33GA-65
Grant Encumbrance Number: 831436
Applicant Name: Matanuska-Susitna Borough School District
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop a standards-based, watershed protection and coastal marine preservation curriculum. The school partnered with the Alaska Departments of Transportation, Fish and Game, Environmental Conservation, and the Alaska Sealife Center. The ultimate aim of the proposal was to create a cadre of youth engendered with a sense of stewardship.

Accomplishments to Date: This project was successfully completed in June 2005. The watershed protection and coastal marine preservation curricula was delivered throughout the school year. Several teachers participated in the assembly of traveling kits. Each kit contains lesson plans, activities and supplies. Topics include: How is a road constructed; Water and erosion; Moose on the Loose; How are bridges constructed; Lakes; and Salmon. In March, fourth and fifth graders took field trips to Seward and Portage Glacier. Four intermediate classrooms participated in Ice Fishing at Finger Lake and two classrooms participated in fish dissection. Several intermediate classrooms traveled to Seward and Portage Glacier in May. Classes studying salmon participated in the Coho Carnival in May. The project manager held a curriculum meeting with teachers to discuss what students needed to be taught before they travel to Seward and Portage Glacier.

Previously, a learning fair was held as part of this project. Students of all ages were engaged in teaching as well as learning throughout the day. The strand on environment and salmon were the main focus for the fourth and fifth grade teams. New teachers were given a brief introduction to the grant and used the lessons provided in the curriculum. Four classrooms worked on the salmon unit. The classes visited the Matanuska Spring Creek and collected eggs. The Alaska Department of Fish and Game gave a great presentation on the habitat and the salmon cycle. The fish tank was set up for the students to observe and keep data. There was instruction on life cycles, food chains, food webs and fish dissection. Other activities related to this project include an ice fishing field trip to Finger Lake, a strand on the impact salmon has in Alaska's industries and communities, and participation in the Coho Carnival.

Submitted Work Products:

Monthly and quarterly reports

A copy of the curriculum, *Environmental Stewardship for Youth, Exploring the Balance of Development and Preservation*.

A Model for Regionally Integrated Environmental Education

Grant Number: 34GA-78
Grant Encumbrance Number: 830182
Applicant Name: Alaska Dept of Fish & Game, Kachemak Bay Research Reserve
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to assess the current state of environmental education in the Kachemak Bay region, to develop a long-range plan for collaboration between environmental education providers, improve coastal science education curricula, develop a web-based planning/reservation tool to address habitat degradation and improve the quality of coastal science education. Project deliverables included a regional plan for Kachemak Bay watershed coastal science program/curricula development and marketing, organization of a Coastal Science Teacher Council to improve communication between teachers and education providers, standards-based K-12 coastal science curriculum, a single-site, web-based planning/reservation tool for K-12 teachers, and a resource list of materials and human expertise on coastal/marine science topics relevant to Kachemak Bay.

Accomplishments to Date: This project was successfully completed in April of 2005. The project completion date was extended to allow for production of the Teacher Resources web page. This has been accomplished at <http://www.homerfieldtrips.com>. The Kachemak Bay Research Reserve (KBRR) has completed the following tasks on this project:

- Developed an assessment of environmental education in the Kachemak Bay Region based on an EE matrix of regional programs compiled into an ACCESS database.
- Compiled and completed a marine science resource list for K-12 teachers.
- Aligned existing curricular activities to state and national science standards.
- Fine-tuned and completed the quantitative assessment of regional EE programs and a regional plan for EE program development and marketing.
- Designed and outlined the project's web-based coastal science planning and reservation tool for teachers and distributed a request-for-proposals to 10 potential contractors for web site design and posting.
- Displayed information and talked about this project and its outcomes at a Research Reserve booth during the NWR System's "Centennial Celebration" at the Kenai Peninsula State Fairgrounds on August 2, 2003.
- Shared information about this project and its outcomes with 1500 Mat-Su School District teachers at their district-wide in-service on August 28, 2003.
- Shared news and future outcomes of this project with Mat-Su, Anchorage, and Kenai Peninsula School District curriculum personnel and Homer area teachers.
- Displayed information and talked about this project and its outcomes at a Research Reserve booth during the 2003 Kachemak Bay Shorebird Festival.
- Shared information about this project and its outcomes with Kenai Peninsula School District teachers and principals via the School District website.

Submitted Work Products:

Kachemak Bay Environmental Education Plan

Outline of SCSE (Support for Coastal Science Education) Teacher Resources Website

Coastal Watershed Education and Stewardship

Grant Number: 41GA-71
Applicant Name: Discovery Southeast, Inc.
Grant Encumbrance Number: 831417
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The Coastal Watershed Education and Stewardship project was intended to develop a field-based coastal stream, estuary, and watershed education program for students from Juneau middle schools and high school. The grant funded a cohesive educational program of research, sampling, study, and restoration actions to help teachers meet the core science curriculum in a manner that is otherwise unavailable. Elements of this project included field-based observation, water quality monitoring, and education on coastal streams, estuaries and watersheds; stream restoration activities; the development of an educational model for hands-on, field-based investigation of ecological and biological principles and linked restoration for students and teachers; and the publication a laminated, pocket-sized field guide specific to Southeast Alaska.

Accomplishments to Date: This project was successfully completed in August of 2005. During the course of the project, the field guide, *The Streamwalker's Companion* was completed (this field guide can be previewed at http://www.discoverysoutheast.org/pubs/streamwalkers_companion.html). Discovery naturalists for the middle school programs met to evaluate progress to date and plan student activity for the remainder of the school year. A study group of high school students began conducting a study of pollutants in the Mendenhall Wetlands. The study group was diverted to the two middle school programs, which are well-established and presented ample opportunity for expansion beyond what was originally planned. Students from Dzantik'i Heeni School met at the University of Alaska Southeast computer lab for a mapping session. They were introduced to the GIS program, and then given the opportunity to explore the program's capabilities. The decision was made to produce three maps of different scale: one large-scale that would show Juneau in Southeast Alaska, one mid-scale that would show the layout of Juneau, and one small-scale that would define the Vanderbilt watershed. Students then worked to produce these products complete with scale bars, legends, and directional arrows. At a second session, students toured the city landfill where, among other things, they were able to see where the runoff water goes and learn about how leachate is monitored by testing the water from four wells. Students from Floyd Dryden School met for their first spring session on April 1. Naturalists continued planning spring activities. A new turbidimeter and miscellaneous sampling supplies were purchased.

Submitted Work Products:

Monthly and quarterly progress reports

A copy of *The Streamwalker's Companion* field guide, which may be previewed at:
http://www.discoverysoutheast.org/pubs/streamwalkers_companion.html

Wasilla High Watershed Inquiry Project

Grant Number: 48GA-102
Applicant Name: Matanuska-Susitna Borough School District
Grant Encumbrance Number: 831414
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop two additions to science education at Wasilla High School. Tenth grade biology students were to learn basic watershed concepts and conduct structured inquiry projects. Eleventh and twelfth grade ecology students were to gain greater familiarity with watersheds and to complete an advanced inquiry project about a coastal watershed topic. All students were to present their results to the community. Potentially, students would meet many Alaska Content Standards for math, science, technology, employability, and English/Language Arts, listed in the grant proposal.

Accomplishments to Date: This project was successfully completed in June 2005. The project schedule was amended to extend the completion date to the end of the 2004/2005 school year. During the past school year, the project was evaluated with the advice of staff from the Alaska Departments of Environmental conservation and fish and Game, and the Matanuska-Susitna Borough. The watershed unit was conducted in the spring. The project director took her students on a field trip to Seattle to study watersheds. During the trip, the students went to the Seattle aquarium, saw two watershed-related IMAX movies, rode the ferry to Vashon Island for some low tide beach combing, visited the Seattle Science Center and toured the fish collection at the University of Washington. During the course of the project, the following objectives were accomplished:

Level I (10th grade biology):

- Students were taught basic watershed and water quality concepts. (April & May 2004)
- Students became familiar with water quality data and completed inquiry project. (May 2004)
- Students mathematically analyzed data used in their inquiry. (May 2004)
- Students collected additional data to verify or disprove the patterns or relationships discovered in their inquiry. (May 2004)
- Students shared their inquiry project with peers and community (WHS Watershed Research Symposium) (May 2004)

Level II (11th and 12th grade ecology)

- Students reviewed basic watershed and water quality concepts. (May 2004)
- Expert scientists guest present and share knowledge about coastal areas, including representatives from University of Alaska Fairbanks, Natural Resources Conservation Service, AK Dept of Environmental Conservation, AK Dept of Fish and Game, Mat-Su Borough. (Jan – May 2004)
- Students choose individualized project focusing on Lake Lucille (AK DEC Impaired Water Body) (May 2004)
- Students create PowerPoint presentations to present at WHS Watershed Research Symposium. (May 2004)

Submitted Work Products:

Monthly and quarterly reports

Copies of PowerPoint presentations on watershed studies in the Wasilla area

Project photos (next page)

Various documents used during watershed unit instruction

Wasilla High School Watershed Inquiry Project Photos

Students conducting watershed studies on field trips



Alaskan Coastal Education Plan

Grant Number: 49GA-62
Applicant Name: Matanuska-Susitna Borough School District, Valley Pathways
Grant Encumbrance Number: 831409
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop, deliver and maintain interactive online Alaska Coastal Environments and Watersheds courses for kindergarten through twelfth grade, through the promotion of marine resource use and management as well as conservation, protection or restoration of wetlands. CIAP funds were used for the course development; and to purchase a computer server; hand-held communication tools; software for the server and handheld devices; and to develop and distribute literature on seeUonline's course information.

Accomplishments to Date: This project was successfully completed in June 2005. This project was amended to extend the project to the 2004/2005 school year. A few changes were made to the project work program to allow for the lessons learned/changes of the second delivery of the classroom course to be incorporated prior to publishing literature. In addition, it was approved that project deliverables be submitted on CD-ROM instead of in hardcopy to allow work to be accomplished in-house and to facilitate product distribution to teachers throughout Alaska. Instead of outsourcing work to a contractor, the decision was made to utilize the expertise of staff members (high school teachers) to copy the disks, create and attach a label with logos and title and create some advertising emails to send out. This has necessitated a redistribution of project funds from contractual to personal services categories in the grant budget.

Delivery of the High School Prototype Classroom Course took place during spring semester 2004. The online coursework has been integrated into the online science class for the middle school class.

Advertisement literature and items were developed with a target date of January 2005 for publication. The high school course was delivered during the summer 2004 session with changes due to the lessons learned tried out.

Submitted Work Products:
Monthly and quarterly reports
CD with program curriculum

Monashka Creek Human Impact Monitoring

Grant Number: 52GA-06
Grant Encumbrance Number: 831410
Applicant Name: Kodiak High School
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: Monashka Creek was stocked with King Salmon smolt for the first time in April 2002. In anticipation that this might produce a significant recreational opportunity for sport fishermen in 2003, Kodiak High's School of Environmental Studies and School of Fisheries Science decided to establish baseline data regarding the health of Monashka Creek. The study was intended to be followed up for several years, displaying any environmental changes to the creek. The high school planned to establish topographical, hydrological, soil and botanical baseline data for the area to be fished. The project would provide evidence for or against the potential harmful environmental impact of foot traffic on the Monashka Creek ecosystem after sport fish enhancement efforts. Results of this project would help local authorities make decisions as to whether trails or boardwalks should be created or whether fishing should be restricted to certain areas. Up to 280 students would have the opportunity to participate in an actual field study project, use technology, and be taught numerous sciences in the process.

Accomplishments to Date: This project was successfully completed during the 2004/2005 school year. All aspects of the monitoring of Monashka Creek (photography, sampling, and survey work) were completed. The project results and photos can be viewed at: <http://www.kodiak.k12.ak.us/khs/khs/Departments/science/baker/index.html>. Kodiak High School's School of Environmental Studies and School of Fisheries science established baseline data regarding the health of Monashka Creek. This was followed up by three years of data which measured any detectable changes in stream bank erosion. Monashka creek was stocked in April of 2002 with 65,000 King Salmon smolt. Students from Kodiak High's School of Environmental Studies and School of Fisheries Science selected the White Sands Creek area of Monashka Creek as their study area. This spot was chosen because it is a popular fishing spot with a great deal of angler traffic and significant streambank erosion. Test plots were set up in areas suspected to be subject to heavy travel. Students took photos of the test areas, and then took baseline soil samples, vegetation studies and elevation measurements, which will be compared to later measurements to determine the effects of angler activity.

Submitted Work Products:

Monthly and quarterly reports

Project report prepared by students from Kodiak High's School of Environmental Studies and School of Fisheries Science

Project photos (next page)

Monashka Creek Human Impact Monitoring Photos



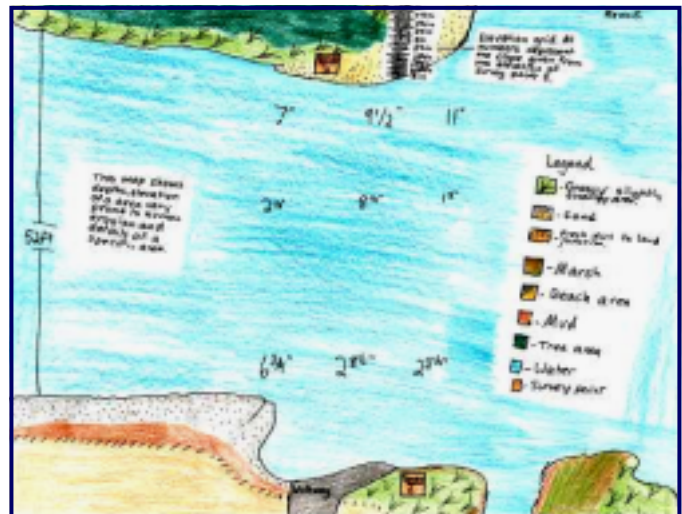
One of the two student project teams



Pre-evaluation of potential erosion at White Sands



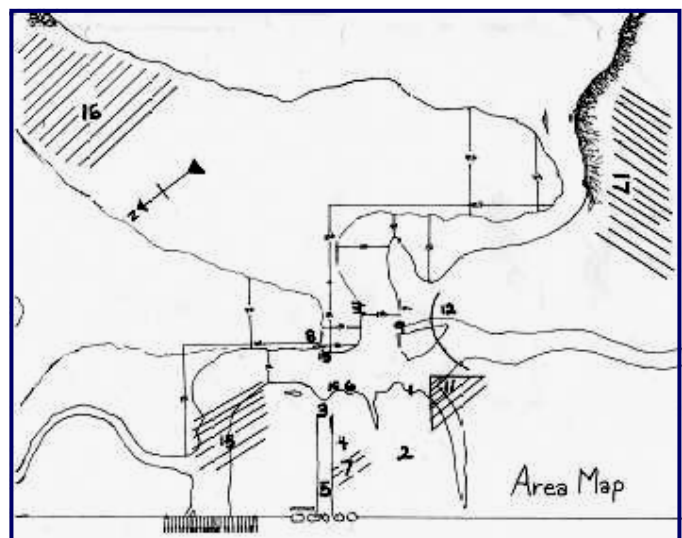
Note attached to all survey and plot markers



Elevation drawing of the project site



Eroded streambank at the project site



Area map showing study areas

Bristol Bay Salmon Camp

Grant Number: 53GA-55
Applicant Name: Bristol Bay Economic Development Corporation
Grant Encumbrance Number: 831423
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop and implement an annual aquatic science academy, "Salmon Camp", for rural students in the Bristol Bay Region. Through this project, students were to develop an understanding and appreciation for Alaska coastal environments and watersheds with a major emphasis on fisheries related research activities. The project was to consist of two summer aquatic science camps that will take place at the Wood Tikchik State Park; one for high school students (10 days) and another for middle school students (5 days). In addition, supplemental enrichment activities were to take place throughout the school year to reinforce participant's learning. One of the deliverables of this project was the development of curriculum and materials that would be made available to school districts in the Bristol Bay region.

Accomplishments to Date: The Bristol Bay Salmon Camp was a great success. Two sessions of the camp were held with a total of 20 students attending. The middle school session was held on July 19-24th, and the H.S. session was held from July 24-29th. Students from Dillingham, Manokotak, King Salmon, Egegik, Clarks Point, and Ekwok attended. Separate sessions were held for middle school and high school students.

Students participated in many different hands-on and classroom activities in limnology, fisheries research and management. Students experienced working alongside professional biologists and were able to interact with them on a personal level. They gained from these experiences not only knowledge, but also an appreciation of Alaska coastal environments/watersheds and the management of these resources.

Camp participants prepared and gave presentations to community members on what they learned at Salmon camp. The middle school students developed personalized posters with pictures from the camp. The high school students each developed a PowerPoint presentation. The student's presentations were well attended and enjoyed by all.

At the beginning of each session a pre-test was given to test student's knowledge about the salmon life cycle, habitat management and the coastal environment. At the conclusion of each session, the students were given a post-test. The test results were incredible, the average pre-test score for the middle school students was 7 out of a possible 28. The average post-test score was 23 out of 28. The high school students showed similar results: the pre-test average was 10/28 and the post-test average was 24/28.

Coordination efforts have continued throughout this project. Partnerships with ADF&G, USFWS, University of Washington's Fisheries Research Institute, UAF Bristol Bay Campus, BBAHC and SWRSD are considered one of the greatest assets of the program. These partnerships have been successful at providing a very unique and challenging learning experience for the camp participants. Participants have the opportunity to interact and learn from professionals.

Submitted Work Products:
Monthly and quarterly reports
Project photos (next page)

Bristol Bay Salmon Camp Photos



Using nets



Field observations



Taking field notes



Viewing zooplankton under microscopes



Spawning sockeye



Students with salmon

Soldotna Community Schools Outdoor Education Camp

Grant Number: 54GA-61
Grant Encumbrance Number: 831423
Applicant Name: Soldotna Community Schools
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The Soldotna Community Schools Outdoor Education Camp was to be a three-week camp for children in grades K-6. Soldotna Community Schools intended to use CIAP funds for running the camp and to develop curriculum for outdoor education and environmental conservation and ecology. A total of 80 kids were expected to participate. Personnel experienced with youth and environmental education would develop curriculum. Local experts would be used as guest speakers. Field trips would take campers to the environments they were learning about. The camp would provide quality instruction using trained instructors and classroom aides. The camp would produce children with a better understanding of the culture and environment around them. In addition, campers would be better equipped to participate safely in outdoor activities.

Accomplishments to Date: Due to a lack of interested participants, the Outdoor Education Camp was cancelled for both the summer 2003 and 2004 sessions. The work program was amended to enable the curriculum planning and camp implementation process to take place during summer 2004, with grant closeout in January 2005, however the project was not carried out. The Community Schools Coordinator who was responsible for this project has since retired, but has been replaced with a new coordinator. It may be necessary to close out the grant with no activity or expenditures.

Submitted Work Products:
None

Cultural/Conservation Education Camp

Grant Number: 55GA-61
Grant Encumbrance Number: 831433
Applicant Name: Tongass Conservation Society
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop a cultural/conservation camp program aimed at teenagers. Four one-week-long sessions would be held over two years, with the focus on the development of creativity and cultural understanding, the conservation and sensible use of natural resources, and actual hand-on experience of restoration, enhancement and protection of Alaska's coastal wetlands and watersheds. It was anticipated that approximately 160 teenagers will attend the camp over two years.

Accomplishments to Date: The Tongass Conservation Society held its Cultural/Conservation Camp in summer 2003 and 2004 on Gravina Island, in the Bostwick Cove area near Ketchikan. Children ages 13 through 17 learned Native culture and survival skills, and attended workshops run by staff from the U.S. Forest Service and the Alaska Department of Fish and Game. The youths that attended the camp caught crabs, dug clams, and participated in workshops on the preparation of sea urchin and sea cucumbers for food, on harvesting edible plants, and on gathering cedar bark and weaving traditional cedar bark baskets.

Submitted Work Products:
Project photos (next page)

Cultural/Conservation Education Camp Photos



Gathering cedar bark for cedar bark basket weaving workshop



Cleaning sea cucumbers



Plant and tree biologists from the U.S. Fish & Wildlife Service give workshop



Alaska Department of Fish & Game staff give workshop on bear and wolf habitat



Cleaning sea urchins for dinner



Traditional music in the evening

MANAGEMENT TOOLS PROJECTS

- **ATV Trail Mapping and Assessment**
- **Mapping Intertidal Habitats**
- **Mat-Su Borough: GIS Mapping of Coastal Zone Watershed**

ATV Trail Mapping and Assessment

Grant Number: 22GA-112
Applicant Name: Alaska Department of Fish & Game, Habitat Division
Grant Encumbrance Number: 830175
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to map ATV trails and assess their resource impacts in the upper Susitna drainage. A map would be produced of summer and winter ATV trails east of the Parks Highway between Willow Creek and the Talkeetna River. The map would describe the number and length of stream and wetland crossings, assess the environmental impacts associated with each trail, and prioritize the trails for future work.

Accomplishments to Date: This project was successfully completed in June 2005. The Alaska Department of Fish and Game began work on this project in July 2003 with the drafting of a project operational plan. The plan details the methods and assessment protocols that will be used during the trail survey. The goal of this project was to examine the nature and extent of ORV trails in a portion of the Susitna River watershed and determine the location of stream and wetland crossings and problem areas such as poorly drained or saturated soils that lead to deep rutting or mudbogs. This project was designed to meet three objectives: 1) locate and map the alignment of individual trails, 2) determine the number and extent of stream and wetland crossings, 3) broadly assess individual trail conditions.

Trail mapping began in August 2003 and was completed in July 2004. A total of 110.6 kilometers of trail were traversed and mapped. Approximately 34.8 kilometers (31.5%) of mapped trail segments were categorized as rutted, containing a series of mudholes, or as eroded enough to impede normal progress of our ATVs. Approximately 5.7 hectares of mudbogs were mapped along the surveyed trail segments along with approximately 3.4 hectares of wetlands that were heavily impacted by ORV use. Impacted trail segments, mudbogs, and disturbed wetlands are shown in the associated GIS file. Thirty-six stream crossings were recorded during the trail surveys. Thirty-three (92%) of the recorded stream crossings were unimproved fords. The remaining three stream crossings utilized small wooden bridges, one of which was closed to large ORV traffic for safety reasons. Thirty-four of 36 total recorded stream crossings (94%) occurred either upstream of documented anadromous fish use or on small tributary or headwaters streams. There are other ORV trails in the survey area that cross documented anadromous fish streams that were previously identified by aerial survey (Appendix A); however, the majority of these stream crossings were not visited during this project due to time constraints and marginal trail conditions.

Information collected during this study can be used to help plan future studies, trail maintenance, or trail improvement projects. Closing certain trails to summer use would protect wetland vegetation and help preserve natural drainage patterns. Relocating or redesigning stream crossings could reduce water quality and fish habitat degradation caused by bank erosion, siltation, and sedimentation. Realignment or relocating trails could reduce surface erosion and the creation of gullies and deeply incised trails. The Matanuska-Susitna Borough and local ORV clubs may be interested in participating in trail improvement projects. Follow up studies to document shore bird nesting habitat on Willow Mountain and stream surveys to document use of available habitat by resident and anadromous fish in Peters and Purches Creeks would be beneficial to resource managers.

Submitted Work Products:

Monthly and quarterly reports, final report
Draft operational plan
Project photos (next page)

ATV Trail Mapping and Assessment Photos



Trail damage from ATVs evident



Hatcher Road Trail



Willow Creek Trail



Willow Creek Trail



Small stream crossing



Rotting bridge on trail near Willer-Kash Road

Mapping Intertidal Habitats

Grant Number: 40GA-77
Applicant Name: Alaska Department of Fish & Game, Sport Fish Division,
Kachemak Bay Research Reserve
Grant Encumbrance Number: 830184
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to map the surface and subsurface plants and animals and of structures and other habitat alterations in the intertidal zone in the Kachemak Bay and Fox River Flats area. The Kachemak Bay Research Reserve education staff would provide this information to the public through the media, local schools, local government, and local businesses. The Kachemak Bay Research Reserve would hold at least four regional workshops to bring the mapping technology to managers, planners, researchers, and local communities.

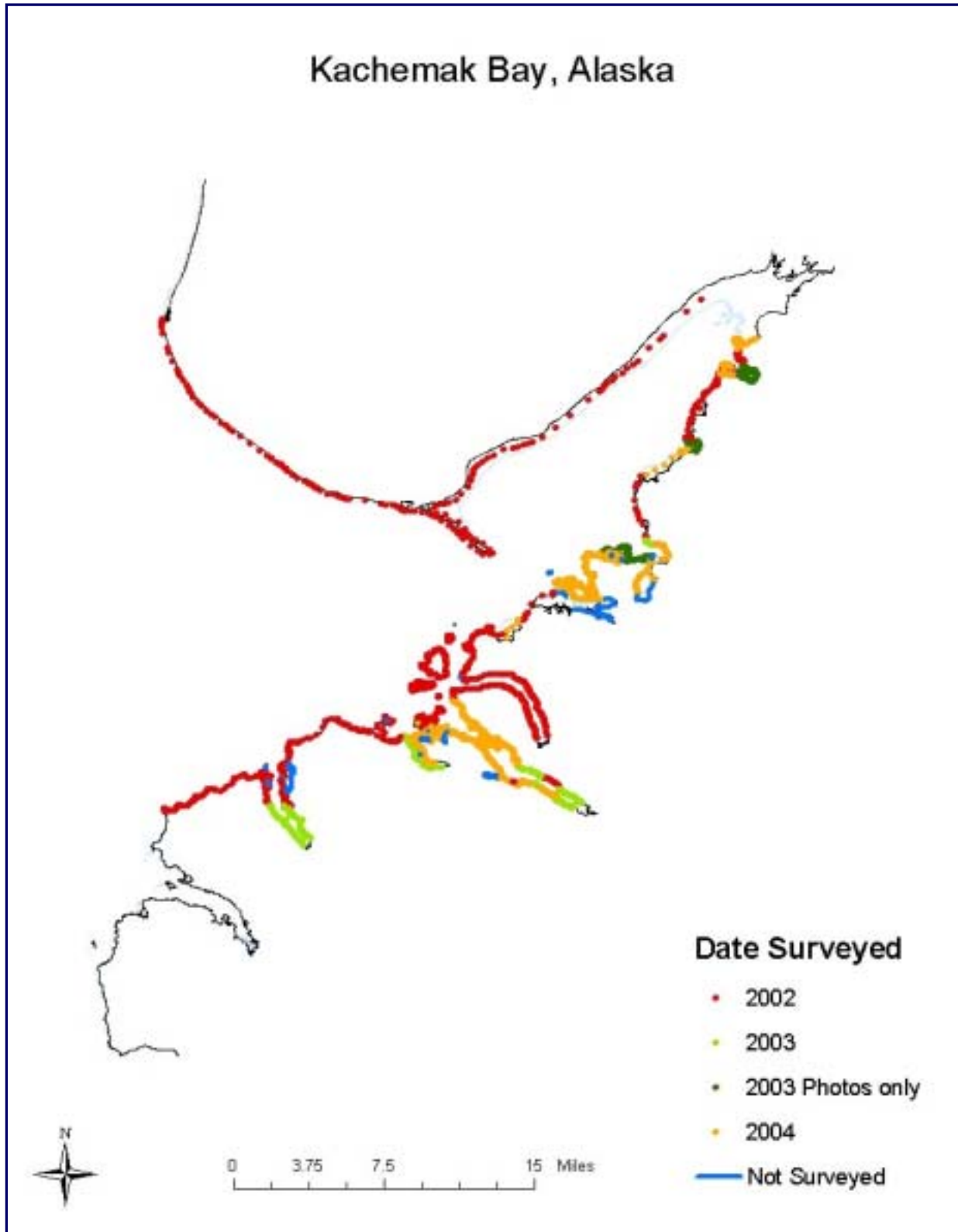
Accomplishments to Date: This project began in 2003 under the supervision of Dr. G. Carl Schock. He is currently at the Oil Spill Response Institute in Cordova. After his departure in October 2003 Dr. W. Scott Pegau took over the program to its completion in March 2005. The CIAP funding was combined with funding from the Exxon Valdez Oil Spill Trustees to provide maps of the intertidal habitats, flora of the salt marshes, and work with Alaska Department of Fish and Game to map the human structures within Kachemak Bay. The intertidal habitat map provides a physical description of an along-beach segment with homogeneous properties. A minimum segment size of 10 meters was used. Within each segment the intertidal was divided into four tide segments determined by their height above the mean lower low water line. Photographs, physical descriptions, and a survey of biological indicator species were collected. Based on the data collected using these protocols, a GIS project was completed that includes photographs of each along-shore habitat segment and a linked database of the biological and physical characteristics of each segment. This project allows researchers and resource managers to quickly identify characteristics of a geographic region or the locations of regions of similar characteristics. The flora of salt marshes was mapped from the lowest extent of vascular plants to the highest wrack line on the beach. Salt marshes were identified using aerial photographs and initial polygons of plant communities were drawn. Fifteen major salt marshes were identified and several smaller pocket marshes were also identified. With the exception of the Fox River Flats marsh an attempt was made to visit each polygon identified on the aerials. Within each polygon the plant community was characterized, two pictures taken, and when necessary samples were collected for a voucher specimen archive. In Fox River Flats only about a third of the area was visited. The plant community descriptions were lumped into like communities and the polygons were mapped into a GIS project.

Two efforts to map human impacts on Kachemak Bay took place. Initially we used the aerial photographs to identify structures in the intertidal zone. In 2004 the Alaska Department of Fish and Game Sport Fish Division conducted a more detailed inventory of all human structures with the Kachemak Bay Critical Habitat area. That survey is available from ADF&G's Anchorage office (333 Raspberry Road, 907-267-2342) through the Sport Fish permitting section. All three efforts have been combined into a single ArcView 8 project.

Submitted Work Products:

Monthly and quarterly reports, final report
Copies of abstracts, High Resolution Mapping of intertidal and Shallow Subtidal Shores in Kachemak Bay, Alaska.
Project maps and photos (example, next page)

Mapping Intertidal Habitats Images



Map of the completed habitat characterization of Kachemak Bay, Alaska.

Mat-Su Borough: GIS Mapping of Coastal Zone Watershed

Grant Number: 45GA-124
Applicant Name: Matanuska-Susitna Borough
Grant Encumbrance Number: 831412
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to acquire and integrate ortho-rectified imagery and topography into the existing Matanuska-Susitna Borough Geographic Information System (GIS) in order to facilitate management of the Matanuska-Susitna Borough (MSB) Coastal Management Zone, which includes about 10,000 square miles including the coastal zone and its watershed. Deliverables include Digital Elevation Model (DEM) and ortho-rectified imagery that is integrated with the existing borough GIS and tailored to the management needs of the MSB Coastal Management Program.

Accomplishments to Date: During the month of April 2005, the Matanuska-Susitna Borough requested an extension to this CIAP grant agreement because portions of the imagery acquisition and posting of the DEM on the Internet not being completed. At this time the borough had the remaining agreement balance of \$29,323 encumbered under the 2005 summer imagery acquisition, however, the acquisition would not likely occur until late summer, which did not meet the granted extension deadline. Due to this fact a new plan had to be developed for the remaining funds. After consultation with Ken Hudson, Chief of Code Compliance, and Susan Lee, the borough's ACMP coordinator, it was decided that it was best to spend the remaining funds on obtaining historical archive imagery of the borough's coastal zone for use in change comparison analysis. Contact was then made with Aeromap US, a local photogrammetric firm, to inquire about what historical imagery was available for the Borough.

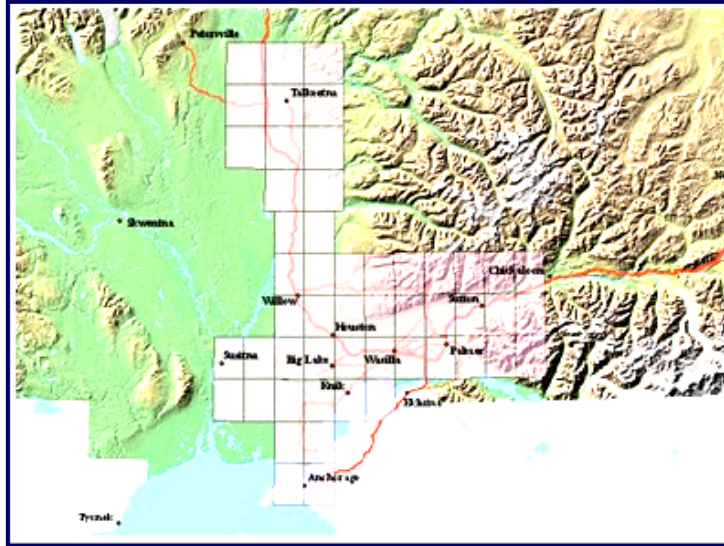
The University of Alaska's Geophysical Institute was also contacted in April 2005, and asked if they could perform the reprojection and metadata preparation of the previously derived digital elevation model. This modification and addition to the DEM were required to meet the Geographic Information System Protocols for the Alaska Coastal Management Program. Due to other contract constraints UAF was unable to meet the delivery date deadline. Reprojection of the DEM and metadata preparation was performed by the borough utilizing in-house resources.

The borough GIS staff worked with Aeromap during the month of May in determining what historical imagery was available that covered the borough's coastal zone watershed area. Aeromap's imagery archive contained some historical imagery mosaics of the borough's core developmental area, with some mosaics extending westerly into the Big Lake drainage area. These image archives were ordered and delivered to the borough in late June, 2005. During June, the borough's GIS staff also posted the previously completed DEM metadata on its Internet website for public access. Final copies of the DEM were then prepared on CD-ROM and submitted for completion of this grant agreement (copies of the USDA acquired 2004 imagery were also submitted on DVD).

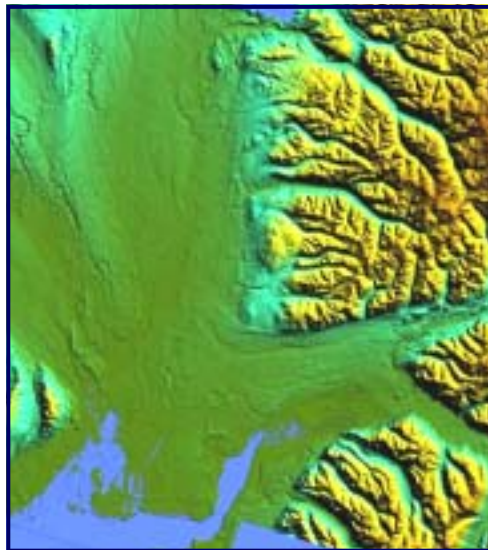
Submitted Work Products:

Monthly and quarterly progress reports; Final report
Images of ortho-imagery (next page)
Final copies of DEM on CD-ROM

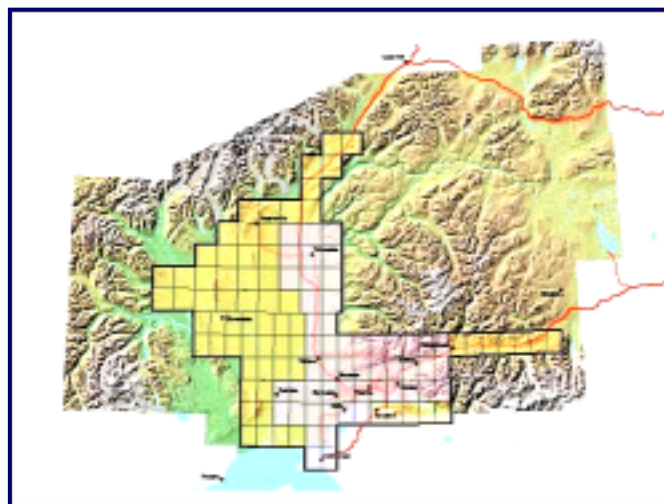
Mat-Su Borough GIS Mapping of Coastal Zone Watershed Images



Area mapped in Mat-Su Valley



Digital Elevation Model Mosaic



Total Area of Imagery Acquisition

PROJECT PLANNING AND DESIGN PROJECTS

- **Wrangell Resource and Community Mapping**
- **Kenai: coastline Maps and Models**
- **ACWA Database: Mapping and integration**
- **CRC: Natural Resource & Native History Interpretation Planning Project**

Wrangell Resource and Community Mapping

Grant Number: 46GA-10
Applicant Name: City of Wrangell
Grant Encumbrance Number: 831435
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was the development of a comprehensive GIS base mapping system encompassing coastal and wetland resource information and community resource data. Once completed, the maps would provide resource information such that the community would have a tool to assist in determining watershed protection needs across state, federal and local lands; and assessing cumulative impacts on the coastal resources from development.

Accomplishments to Date: There were unexpected delays in completing the digitizing and merging of all the data for this project, which prompted a grant amendment to extend the completion date to April 30, 2005. The project was successfully completed at this time.

Wilson Engineering, the City's consultant on the mapping project, completed the computer work and in March came to Wrangell to provide training to the three staff members that will utilize the program and information the most. Wilson Engineering also conducted a workshop with the City Council, the public, and with the Planning and Zoning Commission to introduce them to the program and potential uses of the new system. City of Wrangell staff had three days of training and have since been utilizing the maps in basic ways and working on templates to familiarize themselves with the program and data and to provide more detailed information. Staff is also maintaining lists of errors and data that need to be changed or modified in some capacity.

City of Wrangell staff worked with Wilson Engineering to set up the public computer using compatible Arc Info GIS reader programs, but unsuccessfully. A new component of the Arc Info program suite -- Arc Publisher -- was ordered to allow staff to provide the correct format for Arc Reader for the public and any data requests. The Public Computer was set up by the end of April.

While the program is new to staff, they have been utilizing the information and learning how to better utilize the data for the community's needs. As is obvious to GIS users, the system is no doubt more efficient and can provide more information than the City was otherwise able to provide using 30-year-old assessment maps.

The grant budget was amended in 2004 to redistribute surplus funds from the contractual and travel categories to the equipment category. This allowed the City to set up the public computer and to disseminate the information more efficiently, to complete some data gaps, upgrade memory or acquire a computer for other staff who will also use the information.

Submitted Work Products:

Monthly and quarterly reports
Copies of data on CD-ROM
Copy of manual prepared by Wilson Engineering.

Kenai: Coastline Maps and Models

Grant Number: 47GA-105
Grant Encumbrance Number: 831434
Applicant Name: Kenai Peninsula Borough
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was to develop a coastline map from Anchor Point to Kachemak Bay using Digital Elevation Models (DEM) and Global Information Systems (GIS) technology. The goal of the project was to provide the scientific understanding and foundation needed to develop and implement technically sound and legally defensible coastal management strategies, land-use planning, resource allocations, and engineering solutions. The final product would be the integration of several forms of data into a single GIS and the development of three surfaces: lowstand surface, ravinement surface, and modern surface.

Accomplishments to Date: This project was successfully completed in August 2005. During the past year, historical aerial photographs of the subject coastal regions were rectified, additional literature review was carried out, public extension and continued geodatabase and software training were delivered for eventual data analysis and application. Prior coordination activities included reworking the contract to allow the contractor, TerraPoint USA, more time to process data. The contractor encountered areas with loss of point density, which equates to loss of accuracy. The Kachemak Bay Research Reserve will be collaborated with in beginning the coastline mapping process.

Submitted Work Products:

Monthly and quarterly reports

Final report including 3 copies of 2 CDs each with LIDAR data for Kenai, Alaska.

The final DEM has been posted on the State of Alaska GIS clearinghouse at

<http://www.asgdc.state.ak.us>.

ACWA Database, Mapping & Integration

Grant Number: 56GA-142
Applicant Name: Alaska Department of Environmental Conservation, Air & Water Quality Division
Grant Encumbrance Number: 830177
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was the development of an ACWA (Alaska Clean Water Actions) relational database with mapping capabilities that would capture ACWA statewide priority ranking information relative to specific water resource management concerns. The ACWA database would hold ranking information and priorities for the protection and restoration of water quality, water quantity and habitat components of waterbodies, and would be designed to report these actions between agencies and the public, using web-based applications and mapping tools.

Accomplishments to Date: This project was successfully completed in June 2005. In the remaining months of this project, the Department of Environmental Conservation (DEC) continued implementation of the ACWA Nomination phase detailed design components. The contractor, Resource Data Inc. (RDI), built the ACWA nomination test components for the ACWA database and web application. The database was built and deployed to the DEC development and test servers. Logic and coding was incorporated into web pages along with the State's standard "look and feel". Simple reports were developed. A beta version for the nomination phase was installed for testing. Feedback was gathered and improvements were incorporated into enhanced versions. Upon completion of the MyAlaska security component by the Department of Administration in December, this final component was inserted into the ACWA application to complete the ACWA nomination functionality and allow for thorough testing. The Nomination phase was completed in January 2005.

Additionally, detailed business processes were mapped for the remaining Analysis & Ranking and Actions phases that will complete the ACWA database and web application, in its entirety. Necessary preparations were made, internal approvals were secured and the Department of Administration's ETS Task Order system was engaged to assure that the Analysis and Ranking phase will be ready to commence February 1, 2005, as scheduled. RDI was assigned the Task Order.

As an ongoing activity and in parallel with the ACWA Database development effort, is the preparation of data that will populate the ACWA database. On October 21, 2004, a quality assurance tri-agency review of work completed July-September 2004 was conducted. Additionally, during this reporting period, nominations and water quality data compilation were completed for 50 new waterbodies. To date, the three resource agencies completed further data acquisition, electronic file preparation, scoring and ranking for 110 of 210 ACWA waterbodies. Complete ACWA Nomination Phase by January 31, 2005.

Final completed tasks for this project included the initiation of ACWA Task Order for February 1, 2005 Analysis & Ranking Phase Implementation, database design, web page development and implementation for the Analysis & Ranking Phase, testing and debugging for Analysis & Ranking Phase and the preparation and submission of Phase 3 ACWA Actions Phase ETS Task Order documentation for approval. In addition, on January 13, 2005 an inter-agency review of ACWA process for 50 waterbody rankings was completed during the Oct.-Dec. 2004 period. DEC completed data acquisition for the next 50 nominated waterbodies Jan.-March 2005, completed tri-agency scoring and waterbody ranking on next 50 nominated waterbodies and initiated nomination and water quality data acquisition on 50 new waterbodies for the April-June 2005 reporting period.

Submitted Work Products:

Quarterly reports
Final report

CRC: Natural Resource & Native History Interpretation Planning Project

Grant Number: 9GA-17
Grant Encumbrance Number: 831407
Applicant Name: Haines Chamber of Commerce
Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation
Project Status: Complete
Estimated time to Completion: Closed out

Description and Purpose: The purpose of this project was the development of a Chilkoot River Corridor Interpretation Site Plan. The project would provide a coherent plan for visitor education relating to brown bear biology/safety, better information for visitors in order to reduce visitor impacts, and improved knowledge of historical use. Project deliverables were to include: (A) an interpretation site plan documenting the location, design and construction detail for interpretative sites, access and egress and general thematic content for each interpretive panel and way-site along the CRC; and (B) the final Interpretation Plan which will include "A" above and print-ready graphics and text for each mount, stand and exhibit.

Accomplishments to Date: This project was successfully completed in April 2005. In May 2003, the Haines Chamber of Commerce requested that the original grant agreement be amended due to an arrangement made with the Alaska Department of Natural Resources Division of Parks and Outdoor Recreation (DOPOR) to provide an Interpretive Specialist for this project. These services are being paid for through a Reimbursable Services Agreement (RSA) between the DPOPR and the Department of Community and Economic Development. As a result, the amount of the grant was reduced commensurate with the amount of the RSA. The Haines Chamber of Commerce hired two local contractors to work with the Interpretive Specialist on this project.

During the past year, the planning group worked on the Interpretative Site Plan by meeting with representatives from the Chilkoot Tlingits, the Chilkoot River Corridor Working Group (CRCWG), an archeologist, bear monitors, and DOPOR personnel. Extensive research was performed on the project area, including land status, history, archeology. Meetings were held with the Chilkoot River Corridor Working Group (CRCWG). All members of the CRCWG were contacted via e-mail and sent copies of the plan. Research and interviews were conducted to gather information and ideas. An effort was made to contact CRCWG members absent from the plan introduction to get their ideas. The matrix of levels of development was used as the core of the plan and much work went into its refinement. CRCWG members were asked to indicate their desires for interpretive development by using this matrix. An inventory of resources in the Chilkoot River Corridor is underway.

Additional sketches of interpretive materials were developed and were presented to the working group. These included preliminary ideas for sign visual themes and maps of the specific locations suggested by WG members. These maps were used to refine ideas of sign placement.

Final products included the interpretation site plan documenting the location, design and construction detail for interpretative sites, access and egress and general thematic content for each interpretive panel and way-site along the CRC; and the final Interpretation Plan which includes the interpretation site plan and print-ready graphics and text for each mount, stand and exhibit.

Submitted Work Products:

Monthly and quarterly progress reports; final report
Images of project work (next page)

CRC: Natural Resource & Native History Interpretation Planning Project Photos



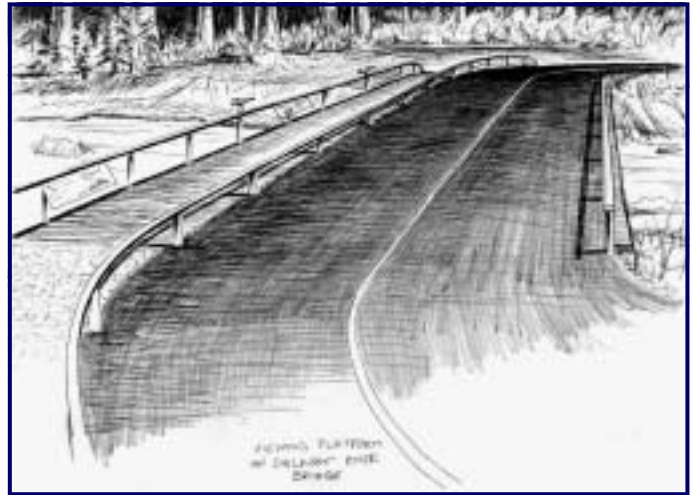
Drawing of Chilkoot River Corridor entrance



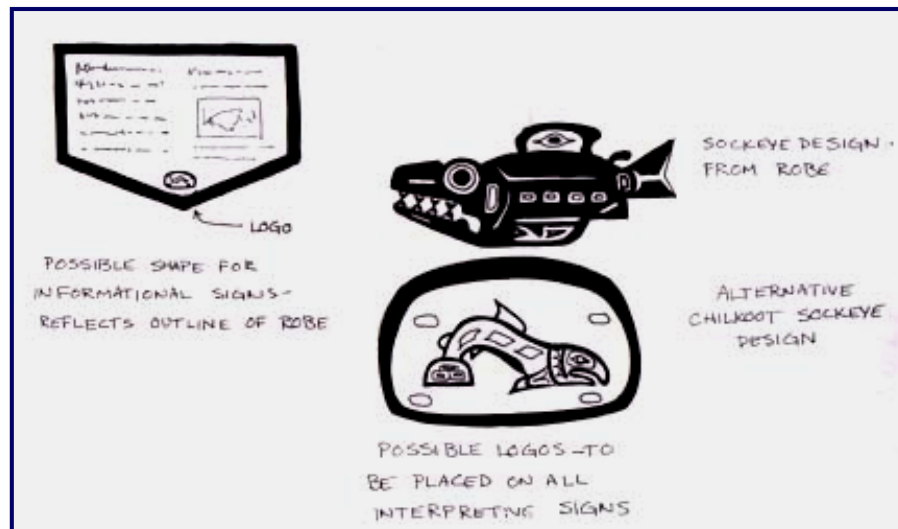
Photo of new totem pole and sign at park entrance



Drawing of Deer Rock Platform



Drawing of viewing platform at Chilkoot River Bridge



Interpretive Sign Logos

INFRASTRUCTURE AND PUBLIC WORKS PROJECTS

- **Swan Lake Rehabilitation and Enhancement Project**

Swan Lake Rehabilitation and Enhancement Project

Grant Number: 16GA-18
Applicant Name: City and Borough of Sitka
Grant Encumbrance Number: 831396
Project Status: Complete
Estimated time to Completion: Closed out

Location of Project: Swan Lake is located just north of downtown Sitka. Sitka is located on the western coast of Baranof Island fronting the Pacific Ocean, on Sitka Sound. It lies at approximately 57.05306° North Latitude and -135.33° West Longitude. (Sec. 36, T055S, R063E, Copper River Meridian.) Sitka is located in the Sitka Recording District.

Description and Purpose: The objective of this project was to improve conditions in Swan Lake, which has been deteriorating for many years with excessive aquatic plant growth, solid waste, various water quality issues and widespread eutrophication. Dredging, water quality monitoring, selective harvest of aquatic vegetation, stormwater controls, and pollution best management practices were elements of this restoration strategy. In addition to enhancing recreational access and use of the Swan Lake AMSA, the fish habitat would be improved through reduced nutrient loads and increased dissolved oxygen levels in the lake. The techniques used in this project would provide a model for lake management that can be used in other Alaskan communities with similar problems.

Accomplishments to Date: This project was successfully completed in June 2005. The scope of work was amended in early 2005 to enable the CBS to do additional restoration work at Swan Lake – a collaborative effort between CBS and the project consultant. The amendments included six tasks covering restoration work and project consultant services for assisting CBS in securing permit approvals, coordinating all project tasks, completing budget/workplan amendments, and preparing final reports. The project consultant completed the Project Description narrative for the Swan Lake-Wrinkleneck Creek Rehabilitation Project, along with required location maps and site photos, and submitted those to CBS. CBS forwarded these to the COE Anchorage Office with a request for coverage under NWP 18. COE approval was granted on June 9, 2005. CBS Public Works Maintenance staff completed the Wrinkleneck Spit shoreline excavation and other culvert upgrade tasks during the week of June 13-17. The Wrinkleneck Spit dredge/fill beach site and Monastery/Sirstad Street drainage upgrades required the majority of effort. Twenty-five cubic yards (cyds) of bogbean vegetation and sediments were removed from the Spit and replaced with filter cloth bedding overlain with pea gravel fill. Large rocks and restrictive riprap were removed. The resultant beach site will promote increased use by recreational boaters and fishers. Pre-operational, and post-dredging photos document work completed. The Monastery Street/Sirstad Street drainage upgrade project involved installing six culvert lengths, a catch basin for sediments, and grating. Improved stormwater flow and sediment treatment through this site was achieved. Photographs document the pre- and post-project condition. Removal of restrictive grasses/vegetation in the stream channel at the inlet to the Wrinkleneck Creek/Lake Street culvert was completed using hand tools took place in mid-June. Prior discussions with Carl Schrader of ADNR confirmed that no fish permit (Title 41) was required if hand tools were used to remove restrictive vegetation in lieu of using a backhoe. Removal of bogbean vegetation around the outlets of several stormwater outfalls discharging to Swan Lake was accomplished over several months as part of the CBS' stormwater maintenance activities. The diving team retrieved buoys and completed lily root growth measurements on June 26. Results indicated a horizontal terminal root growth of about 3 inches over 8 months, with vertical leaf stalks from the root growing over 5 feet during that time. No new lily growth was found in lake channels dredged in June 2004. This information confirms dredging as the most cost effective and successful means to remove lily roots and suggests that reestablishment of lilies into dredged areas is on the order of a decade or more rather than several years. Water visibility in June 2005 was measurably better than in October 2004 when initial dive work was completed. This is an important consideration in scheduling future dive work.

Submitted Work Products:

Monthly and quarterly reports
Project photos (next page)
Sitka Sentinel newspaper article of lake dredging

Swan Lake Rehabilitation and Enhancement Project Photos



Dredging activity in Swan Lake



Dredging Swan Lake



Lily roots



Huge lily root



Lily root

WASTE AND DEBRIS REMOVAL PROJECTS

- **Abandoned Debris Removal from Crab Bay**

Abandoned Debris Removal from Crab Bay

Grant Number: 21GA-02
Applicant Name: City of Craig
Grant Encumbrance Number: 831392
Project Status: Complete
Estimated time to Completion: Closed out

Location of Project: Crab Bay is located to the north of the City of Craig. Craig is located on a small island off the western coast of Prince of Wales Island, and is connected by a short causeway. It is 31 road miles west of Hollis. It lies 56 air miles northwest of Ketchikan, 750 air miles north of Seattle, and 220 miles south of Juneau. It lies at approximately 55.47639° North Latitude and -133.14833° West Longitude. (Sec. 06, T074S, R081E, Copper River Meridian.) Craig is located in the Ketchikan Recording District.

Type and amount of debris removed: Abandoned vessels and associated debris, including an abandoned barge that is apparently leaking petroleum products into the Crab Bay estuary.

Description and Purpose: The City of Craig removed from Crab Bay all abandoned vessels and associated debris, including an abandoned barge that is apparently leaking petroleum products into the Crab Bay estuary. Upon project completion, contaminated materials from the abandoned barges, floats and vessels in the bay were to be removed and disposed of at an approved upland facility.

Accomplishments to Date: This project was successfully completed in February of 2005. Previously, the City of Craig requested an amendment to the grant work schedule to extend the completion date to June 30, 2005 because the contractor performing the cleanup work would be out of state until early 2005 when the shrimp beam-trawl commercial fishery closes its winter season.

In February 2005, the contractor completed the balance of the debris removal in Crab Bay, concluding the project. Over the course of this project, debris removal took place at the mouth of Crab Creek, moving southward along the Crab Bay shoreline so as to avoid activity in the creek bed during the out migration period of juvenile salmon. Efforts have also been focused on the demolition of a large, grounded barge on the east shore of Crab Bay. Several other grounded and abandoned vessels and several loads of debris were hauled from the intertidal area of the bay.

Submitted Work Products:

Monthly and quarterly reports
Final report
Drawings showing location of work completed

Projects Completed in 2004

HABITAT RESTORATION PROJECTS

- Silver Salmon Creek: Culvert and Streambank Restoration
- Ship Creek Restoration Project

LAND ACQUISITION PROJECTS

- Gustavus Land Acquisition

EDUCATION AND COMMUNITY OUTREACH PROJECTS

- Interactive Marine and Coastal Science Exhibit
- Peninsula Pike Project & Daniel's Creek Restoration

MANAGEMENT TOOLS PROJECTS

- Nome District Mapping and GIS Project
- Environmental Sensitivity Index Mapping (W. AK & Bristol Bay)
- ShoreZone Inventory of Afognak and Northern Kodiak Islands

DATA COLLECTION AND RESEARCH PROJECTS

- Wolverine Creek Cove: Bears, Anglers and Bear-watchers
- Kenai River: Water Quality Research
- Establishing a Community-Based Water Quality Laboratory

HABITAT RESTORATION PROJECTS

- Silver Salmon Creek: Culvert and Streambank Restoration
- Ship Creek Restoration Project

Silver Salmon Creek: Culvert and Streambank Restoration

Grant Number: 8GA-135
Grant Encumbrance Number: 831408
Applicant Name: Kenai Watershed Forum
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: The Silver Salmon Creek: Culvert and Streambank Restoration project involved the removal and replacement of an undersized culvert that was creating a barrier to juvenile fish passage. The culvert served as a velocity barrier with a substantial hydraulic jump at a critical time of year for migrating juvenile salmon. The culvert was improperly embedded in the stream channel and was too small for the volume of water in Silver Salmon Creek. This was a demonstration project that brought together the expertise of the Kenai Peninsula Borough, the Alaska Department of Fish and Game, and the Kenai Watershed Forum. The result was a well-documented educational product that underscored the need to find Alaskan solutions to what the Forum demonstrated was an obvious problem. This culvert was selected because it was in a high priority stream supporting Chinook and Coho spawning and rearing habitat, had no funding identified for the problem, and made a good case for documentation as a demonstration project. The project involved the replacement of an undersized culvert, reconstruction of the floodplain, removal of excess material from the channel and associated floodplain; and then monitoring the changes to channel configuration and natural revegetation growth, including longitudinal stream profiles, cross-section, discharge and water velocity measurements at monumented section locations.

Type and Acreage of habitat restored: Silver Salmon Creek is the major headwater tributary to Deep Creek, a well-known and well-utilized fishing stream on the Kenai Peninsula. Silver Salmon Creek provides critical spawning and rearing habitat to king, Coho, and pink salmon. All of these species are impacted to a degree because of this culvert.

Location of Habitat: The focus of this project is an undersized stream culvert underlying Oil Well Road, a Kenai Peninsula Borough-maintained road at Silver Salmon Creek near Ninilchik, Alaska. Ninilchik lies on the western coast of the Kenai Peninsula on the Sterling Highway, 38 miles southwest of the City of Kenai, and 188 road miles from Anchorage. The community lies between mileposts 119 and 144 of the Sterling Highway; the business center has developed between Ninilchik River and Deep Creek. It lies at approximately 60.05139° North Latitude and -151.66889° West Longitude. (Sec. 34, T001S, R014W, Seward Meridian.)

Accomplishments to Date: This project was completed in the summer of 2004 with the replacement of the undersized culvert, reconstruction of the floodplain, and removal of excess material from the channel and associated floodplain. As a result, 22 miles of stream are now accessible to juvenile fish. The Silver Salmon Creek Restoration Team received a **2004 Coastal America Partnership Award** (see <http://www.coastalamerica.gov/text/awards2004.html>) for the Team's efforts to restore and protect coastal environments. The project was documented in the newspaper article, *Restoration Project Promises Big Return on Funds Invested*, and in the report, *Silver Salmon Creek Restoration Project* by Robert Ruffner and Anne Remick. A summary and project photos are available online at: <http://www.kenaiwatershed.org/silversalmoncreek.html>.

Submitted Work Products:

Final progress and financial reports

NOAA Restoration Center, Community-Based Restoration Program, *"Silver Salmon Creek Restoration Project"* by Robert Ruffner and Anne Remick.

Silver Salmon Creek : Culvert and Streambank Restoration Photos

Before and after photos of the restoration zone of Silver Salmon Creek



At culvert, before restoration



At culvert, after restoration



Before floodplain restoration



After restoration

Ship Creek Restoration Project

Grant Number: 23GA-125
Grant Encumbrance Number: 831431
Applicant Name: Anchorage Waterways Council
Project Status: Closed out
Estimated time to Completion: Complete

Location of habitat: The project site is located behind the Comfort Inn in downtown Anchorage, along Ship Creek Avenue. Anchorage is located in Southcentral Alaska at the head of Cook Inlet. It lies at approximately 61.21806° North Latitude and -149.90028° West Longitude. (Sec. 28, T013N, R004W, Seward Meridian.)

Type and acreage of habitat restored: The project involved the restoration of 120 linear feet of vegetation along Ship Creek, behind the Comfort Inn. The Comfort Inn is a popular tourist attraction because of its location on Ship Creek, whose urban location makes it the state's second largest freshwater fishery. The Alaska Department of Fish and Game has designated Ship Creek as an anadromous stream. Historically, the creek has supported significant runs of king, silver, chum and pink salmon, as well as Dolly Varden char and rainbow trout. Over the past century, development, industrial use and the presence of dams have impacted the lower 10-mile reach of the creek. Three to four miles of the creek have been channelized and a culverted road crossing has significantly reduced aquatic habitat and blocked fish passage into the Ship Creek Watershed. Industries and businesses within close proximity to the creek have removed buffer vegetation, leading to increased erosion of the streambank and compromised fish habitat. Only remnant natural runs currently remain, supplemented by hatchery production of several thousand king and silver salmon.

Description and Purpose: The objective of this project was the revegetation of a portion of the Ship Creek streambank using native shrubs and grasses. The project also involved the installation of protective fencing for the revegetated areas, and the design and construction of an Americans with Disabilities Act (ADA) approved walkway for angler access to Ship Creek behind the Comfort Inn in order to reduce erosion and improve anadromous fish habitat.

Accomplishments to Date: This project concluded in summer 2004 with the completion of an elevated, light-penetrating, ADA-approved walkway; hydroseeding of surrounding areas to promote vegetation growth; and the installation of an interpretive display explaining the importance of streambank restoration to accompany the project.

Submitted Work Products:

Interpretive Design Plans
Design for the Walkway
Monthly and quarterly reports
Project photos (next page)

Ship Creek Restoration Project Photos

Completed ADA-approved walkway with interpretive display



LAND ACQUISITION PROJECTS

- Gustavus Land Acquisition

Gustavus Land Acquisition

Grant Number: 30GA-19
Grant Encumbrance Number: 831437
Applicant Name: Gustavus Land Legacy
Project Status: Closed out
Estimated time to Completion: Complete

Acreage and type of land: 3,000 acres of the Gustavus forelands. The lands to be purchased encompass three separate watersheds with a mosaic of habitat that include pine forests, birch, soapberry and willow. The lands attract the largest attraction of sand hill cranes in southeast and numerous other waterfowl; provide nesting grounds for many resident species, including short-eared owls, snipe, and Canada geese; and supports a healthy moose population, black bears, wolves, and coyotes.

Location of Land Acquired: Gustavus lies on the north shore of Icy Passage at the mouth of the Salmon River, 48 air miles northwest of Juneau in the St. Elias Mountains. It lies at approximately 58.41333° North Latitude and -135.73694° West Longitude. (Sec. 12, T040S, R058E, Copper River Meridian.) Gustavus is located in the Juneau Recording District.

Land ownership: The land is currently owned by the Alaska Mental Health Trust. The Alaska Department of Fish and Game and The Nature Conservancy will hold title to portions of the land after its purchase. An agreement is currently being drafted between these two organizations detailing who will hold title to which parcels once the land purchase has been completed.

Projected use of land: Conservation

Description and Purpose: The purpose of this project was the purchase 3,000 acres of the Gustavus forelands from the Alaska Mental Health Trust. All grant funds were to go toward purchase of the land (there is a willing seller and a management plan for the lands has already been written).

Accomplishments to Date: In the final year of this project, the Gustavus Land Legacy (GLL) met with staff from the Alaska Department of Fish and Game, the Department of Natural Resources, The Mental Health Land Trust, and The Nature Conservancy to identify and complete the steps necessary to close the land transaction in Gustavus. A surveyor was hired to determine the exact acreage of accreted land. The Mental Health Trust filed a quiet title suit to obtain clear title for the accreted lands. A land assessor was hired to determine the precise value of the land. In addition to the CIAP grant, GLL, in partnership with The Nature Conservancy, obtained two million-dollar grants from the Fish and Wildlife Coastal Wetland Protection Program for the land purchase. Land Legacy staff drafted an agreement between the Alaska Department of Fish and Game and The Nature Conservancy detailing title to specific parcels once the purchase has been completed. A series of meeting were scheduled in the month of November to gather community input into the ongoing negotiations with Fish and Game regarding land ownership. GLL successfully applied for a \$30,000 grant from the Fish and Wildlife Service to complete a vegetation map of the Gustavus Forelands for which an environmental consultant was hired to prepare. The Gustavus Land Legacy project culminated with the purchase of 4,137 acres of land on October 08, 2004.

Submitted Work Products: Final progress and financial reports

Copies of:

- Quitclaim Deed from Alaska Mental Health Trust Authority to The Nature Conservancy
- Appraisal of 4,137 acres of Mental Health Trust Lands at Gustavus, Alaska by Horan, Corak & Company
- Agreement for the Purchase of Real Estate between the Alaska Mental Health Trust Authority and The Nature Conservancy
- Cooperative Agreement between The Gustavus Community Association, acting through its Land Legacy Committee and the Nature Conservancy for Gustavus Land Acquisition

EDUCATION AND COMMUNITY OUTREACH PROJECTS

- Interactive Marine and Coastal Science Exhibit
- Peninsula Pike Project & Daniel's Creek Restoration

Interactive Marine and Coastal Science Exhibit

Grant Number: 27GA-99
Applicant Name: The Imaginarium, Inc.
Grant Encumbrance Number: 831393
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: The purpose of this project was to renovate and expand the Imaginarium's marine science exhibit to more effectively promote science education and public understanding of watersheds, and marine and coastal environments.

Accomplishments to Date: The Imaginarium, Inc. successfully expanded the science discovery museum's marine science exhibit. The expanded exhibit is entitled, ***Discovery Cove: Alaska's Coastal Treasure***. As part of this project, the existing touch-tanks to were modified to create "artificial tides". A new marine aquarium housing deep-water fauna was installed, and additional marine life was placed in marine tanks. The new exhibit also includes "stream table" for hands-on exploration of various hydrologic processes, three educational kiosks with Alaskan marine animal themes (clam, sea star and anemone), and a video kiosk with a choice of programs related to marine fauna and various coastal environments in Alaska. New signs, text, and graphics were also part of the renovation project.

Submitted Work Products:
Monthly and quarterly reports
Final progress report
Project Photos (next page)

Interactive Marine & Coastal Science Exhibit Photos



Stat star kiosk



Marine room entrance



Sea star kiosk completed



New touch tanks



Microscope table



Water play area

Peninsula Pike Project & Daniel's Creek Restoration

Grant Number: 38GA-26
Applicant Name: Kenai Youth Restoration Corps
Grant Encumbrance Number: 831425
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: This project incorporated the environmental education of youth and community with restoration of critically damaged areas near Daniel's Creek on the Kenai Peninsula. Two main activities took place:

1. Northern pike sampling in several lake systems that have been identified as potentially contaminated by pike. Local elementary and high school children sampled these areas to determine the existence of pike, and dissected to determine feeding habits. The information was to be forwarded to ADF&G to determine a course of action.
2. Restoration of a section along Daniel's Creek in Nikiski with the help of local fifth and sixth graders. Daniel's Creek provides 15,000 sockeye and an unknown number of Coho that migrate up the creek to spawn. The project rebuilt a heavily trafficked area by installing a culvert and building up the area with gravel and indigenous vegetation.

Accomplishments to Date: This project was completed in June 2004. The Youth Restoration Corps (YRC) recruited local youth from area high schools to work on this restoration and education project. In the course of this project, the YRC accomplished the following tasks:

- With the assistance of the Department of Environmental Conservation, ranked and prioritized restoration projects to be focused on during the course of this program.
- Obtained necessary permits for the project, including Kenai Peninsula Borough Flood Plain Permits, Corps of Engineers, Alaska Department of Fish and Game Habitat permit, US Forest Service, and EPA permits.
- Completed an environmental assessment through the assistance of the U.S. Forest Service.
- Volunteered in local schools on an assortment of projects including identifying and planting felt leaf willows, and explaining the habits and effects of northern pike on salmon and trout populations in Southcentral Alaska.
- Restored over 1300 lineal feet of streambank along Cooper Creek, Russian River and Daniels Creek
- Planted 5000 birch trees that Seward High School students grew for the 2001 Kenai Lake burn area.
- Provided continued access across Daniels Creek by installing a ½ round culvert over this small anadromous stream located in Nikiski.

Submitted Work Products:
Monthly and quarterly reports
Final Report

MANAGEMENT TOOLS PROJECTS

- Nome District Mapping and GIS Project
- Environmental Sensitivity Index Mapping (W. AK & Bristol Bay)
- ShoreZone Inventory of Afognak and Northern Kodiak Islands

Nome District Mapping and GIS Project

Grant Number: 24GA-41
Applicant Name: City of Nome
Grant Encumbrance Number: 831427
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: The Nome District Mapping and GIS Project provided orthophoto maps of the Nome Coastal Management District and purchased an ArcView GIS system. The maps will facilitate implementation of the Nome district coastal management plan. The project will also complement Nome's preparation of a comprehensive plan and a Flood Mitigation Plan. The District will use the maps and GIS system to complete land use planning in the coastal district; create base mapping for existing utility infrastructure, plan and design infrastructure; and provide information to the public regarding current and future land use.

Accomplishments to Date: The City of Nome commenced work on this project by contracting a planner to oversee the project. Two scopes of work were prepared with the mapping firm, Aero Map, for the ortho photo project. The first scope of work is to map the city at 1"=200' with 4 foot contours. The second scope of work was to map the city at 1"=100' with 2 foot contours. The project area was flown, and maps were delivered to the City of Nome in the second quarter of 2004. Arc View GIS software was purchased for the City of Nome to use in its land use planning efforts.

Submitted Work Products:

Monthly and quarterly reports
Final reports
Paper copies of base map

Environmental Sensitivity Index Mapping (W. AK & Bristol Bay)

Grant Number: 43GA-118
Applicant Name: Research Planning, Inc.
Grant Encumbrance Number: 831404
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: The purpose of this project was the creation of Environmental Sensitivity Index (ESI) hardcopy atlases and digital databases for the Western Alaska and Bristol Bay sub-areas as defined by the Alaska Federal/State Unified Plan for Oil Spill Preparedness and Response. Project deliverables included two atlases at 1:250,000 scale covering the Yukon-Kuskokwim Delta shoreline, the Bristol Bay shoreline, and a short section of the southern AK peninsula shoreline and information in various digital forms including GIS and PDF files.

Accomplishments to Date: This project was completed in the 3rd quarter of 2004. Research Planning, Inc. completed the mapping of the Western Alaska (Yukon/Kuskokwim Delta) portion of this project in May, with the submission of the final digital deliverables for the Western Alaska Environmental Sensitivity Index (ESI) atlases in their standard formats that include: PDFs of the hardcopy product, the digital data in four formats, and FGDC-compliant metadata. Digitization has been completed of the shoreline habitats for the Bristol Bay (Kuskokwim Delta to the Aleutians East Borough, northeast of Port Moller and part of the Southern Alaska Peninsula) atlas. All available data for the biological and human-use data has also been gathered. The digital data has been analyzed and formatted as needed. The hardcopy data has been compiled onto base maps and in tabular format, and data entry is complete. Both sets of atlases and CDs have been distributed to state and federal agencies and to ACMP coastal district coordinators within the Western Alaska and Bristol Bay areas.

Submitted Work Products:

Monthly and quarterly reports
Final progress reports
Western Alaska Environmental Sensitivity Index (ESI) atlases and CDs
Bristol Bay Environmental Sensitivity Index
(ESI) atlases and CDs

ShoreZone Inventory of Afognak and Northern Kodiak Islands

Grant Number: 28GA-21
Grant Encumbrance Number: 831430
Applicant Name: Cook Inlet Regional Citizens Advisory Council
Project Status: Close out
Estimated time to Completion: Complete
Type of data collected: GIS data on coastal habitats of Afognak and Northern Kodiak Islands

Description and Purpose: The purpose of this project was to expand the ShoreZone mapping program in the Gulf of Alaska to include shorelines along Afognak and northern Kodiak Islands. Aerial ShoreZone surveys were conducted for these areas in 2002, funded by the Exxon Valdez Oil Spill Trustee Council. However, the mapping of the survey information was not planned or funded. This Coastal Impact Assistance Program grant to the Cook Inlet RCAC provided a GIS database on coastal habitats for these areas using the Alaska ShoreZone Mapping Protocols.

Accomplishments to Date:

Cook Inlet RCAC subcontracted the work on this project to Dr. John Harper of Coastal and Ocean Resources, Inc. (CORI). CORI has completed all contractual obligations to the Cook Inlet RCAC relating to this project: the biophysical mapping, digital imagery and biophysical data posted to the web site, and two workshops on March 15 in Kodiak, a detailed data-intensive workshop and a more public-friendly evening presentation.

CIRCAC coordinated this ShoreZone project with other related projects, as it is a subset of a larger ShoreZone mapping effort for the northern Gulf of Alaska. This CIAP project was a collaborative effort in that the EVOS Trustees funded a portion of the project (aerial surveys) and CIRCAC (through this CIAP grant) is overseeing the biophysical mapping. CIRCAC developed public outreach tools for the ShoreZone mapping products and conduct community visits in early 2004.

An electronic copy of the final data description report for the project was submitted. The georeferenced aerial imagery was incorporated into the Gulf of Alaska image-access web site and this access tool for Afognak and northern Kodiak Islands can be viewed at www.coastalaska.net. This imagery tool allows users to access the digital images collected during the ShoreZone surveys and provides a “virtual” flight along the coastlines of Afognak and Kodiak islands.

Submitted Work Products:

Monthly and quarterly reports

Final progress report

“**ShoreZone Mapping Data Summary, Kodiak, Alaska**” by Coastal & Ocean Resources, Inc. and Archipelago Marine Research Ltd., prepared for the Cook Inlet Citizen’s Advisory Council. Includes both hardcopy and electronic versions.

DATA COLLECTION AND RESEARCH PROJECTS

- Wolverine Creek Cove: Bears, Anglers and Bear-watchers
- Kenai River: Water Quality Research
- Establishing a Community-Based Water Quality Laboratory

Wolverine Creek Cove: Bears, Anglers and Bear-watchers

Grant Number: 42GA-141
Grant Encumbrance Number: 830176
Applicant Name: State of Alaska, Dept of Fish & Game
Project Status: Closed out
Estimated time to Completion: Complete
Type of data collected: Data on bear and human use of Wolverine Creek Cove. Measurements include time and area-specific capture of sockeye salmon by bears, numbers and locations of all fish caught by sport anglers, human/bear interactions and other parameters.

Description and Purpose: The purpose of this Alaska Department of Fish and Game study was to quantify the impacts of human activities, particularly sport fishing, on bear access to sockeye salmon in Wolverine Creek Cove, part of the Redoubt Bay Critical Habitat Area. The study demonstrated a methodology to be used for measuring the impacts of intensive recreational fishing and bear-viewing on salmon streams, and provide much needed baseline data on the responses of bear behavior to varying intensities of recreational fishing. The information produced will be used directly in the upcoming planning process for Wolverine Creek Cove. The final deliverable was a report discussing the impacts (if any) of intensive human use on bears utilizing resources in Wolverine Creek Cove.

A field camp, pre-established by ADF&G at Wolverine Creek Cove, was reopened and a research tower was erected near the field camp. Permits required for the field camp were already in place at the start of this project. These include ADF&G special Area Permits and Alaska Department of Natural Resources Land Use Permits for establishing a field camp and storing boats, and ADF&G fish collection permits. Thirty 24-hour observations were conducted while collecting data on bear and human use of Wolverine Creek Cove. Measurements included time and area-specific capture of sockeye salmon by bears, numbers and locations of all fish caught by sport anglers, human/bear interactions and other parameters.

Accomplishments to Date: Data obtained from the Wolverine Creek Field Camp were analyzed and completed in early 2004. Travel from Washington State University to Kenai took place during the first week of April to present the results of this study to the Wolverine Creek Management Committee. A PowerPoint presentation summarizing the results of the 2002 and 2003 field seasons was prepared for the annual meeting of the Wolverine Creek Management Committee, which took place the first week of April 2004 in Kenai. This public meeting was attended by approximately 30 people (not including Department staff) who possessed an interest in Wolverine Creek and included air taxi operators, sport fishing and bear-viewing guides, lodge owners, photographers and private users. The results of this research stimulated lengthy discussions and questions related to these results and management implications for the area.

Washington State University (WSU) graduate student Troy Tollefson completed writing the final report during this quarter. The final report was submitted for publication and was accepted by the Journal of Wildlife Management. It will also be made available to members of the Wolverine Creek Management Committee and other members of the public.

Submitted Work Products:

Monthly and quarterly reports

Project photos (next page)

“Quantifying Spatiotemporal Overlap of Alaska Brown Bears and People” by Troy Neil Tollefson, August 2004.

Wolverine Creek Cove Photos



Observation Tower



Camp Setup



Anglers and bears sharing space



Boaters and anglers at the cove



Anglers and bear fishing



Bear fishing

Kenai River: Water Quality Research

Grant Number: 37GA-137
Applicant Name: Kenai Watershed Forum
Grant Encumbrance Number: 831411
Project Status: Closed out
Estimated time to Completion: Complete
Type of data collected: Water samples collected from the Kenai River as part of a water quality inquiry

Description and Purpose: The purpose of the Kenai River Water Quality Research project was to extend the findings of a previous water-quality research project to a second phase in order to enhance quality assurance and quality control of previous research. In the course of the project, several crucial issues were raised about water quality of the Kenai River:

- What role the river's extreme tidal fluctuation plays in mixing and/or concentrating the contaminants back upstream.
- Whether the concentrations found with one grab sample in mid-stream accurately represent the whole of the water column.
- How results would vary if data collection took place other than at peak use of the river.

The final products of this project included a minimum of fifty-one analytical sample results submitted to the Alaska Department of Environmental Conservation and the federal Environmental Protection Agency, and a paper published in a peer-reviewed journal.

Accomplishments to Date: Using an iterative-acquired knowledge approach based on data from previous research on the Kenai River, the Kenai Watershed Forum collected and analyzed a series of water samples to extend the research carried out in an earlier phase of this project and to enhance research quality assurance and quality control. Six water samples were analyzed for total aromatic hydrocarbons (TAH-benzene, ethylbenzene, toluene, m,p-xylene, o-xylene), total phosphorus (TP), and fecal coliform (FC) in a cross-sectional profile across the lower river. This research was performed to determine how representative one "center of channel" sample accurately characterizes the concentration of contaminants of concern. Six water samples were then analyzed for TAH, TP, and FC in a longitudinal profile across the lower river between river mile 8 and river mile 0. The purpose of this sampling was to determine what river mile had the highest concentration of contaminants of concern. Fifteen water samples were analyzed for fecal coliform from "No Name Creek", a tributary near the mouth of the Kenai River. Sampling progressed upstream along the tributary to establish the number of fecal coliform colonies present in a creek that is known to have human contact in order to identify a likely source. A hydrolab was deployed to collect data on 15-minute intervals. Finally, five water samples were analyzed for the entire suite of parameters - TAH, TP, F.C. and dissolved metals - in order to characterize the seasonal variation into fall for all parameters. A final technical data report summarizing the findings was submitted in December.

Submitted Work Products:

- Monthly and quarterly reports
- Draft Technical Data Report, "**Summer 2003-Selected water quality parameters with in-river use patterns**" by Robert Ruffner, Ole Anderson, Rachael Popp, and Burch Fisher
- Technical Report: "**Anthropogenic Hydrocarbon Concentrations in the Kenai River Watershed, Part 1 - Single Ring Aromatics Associated with Outboard Motorboat Activity**" by Robert Ruffner.

Establishing a Community-Based Water Quality Laboratory

Grant Number: 6GA-45
Applicant Name: Cook Inlet Keeper
Grant Encumbrance Number: 831428
Type of Data Collected: Water quality data on coastal watersheds.
Project Status: Closed out
Estimated time to Completion: Complete

Description and Purpose: The purpose of this project was to establish a community-based water quality laboratory where comprehensive water quality data on coastal watersheds can be collected, analyzed, and distributed. Cook Inlet Keeper partnered with the Homer Soil and Water Conservation District on this project, which took place in three phases. Phase I of the project involved the training and recertification of citizen volunteers to collect baseline data on water and habitat quality; comprehensive, reliable water and habitat data, and the development of a fully equipped, community-based water quality lab for monitoring and protection of coastal resources. Phase II involved the provision of the equipment and other resources necessary to substantially improve the Partners' monitoring of coastal resources. The product of this phase was nutrient level data in coastal watersheds useful for informed management and protection of coastal resources; a contract between Project Partners and Kachemak Bay Research Reserve to provide nutrient analysis; source of fees for service income to defray laboratory costs. Phase III involved an assessment of the demand for greater capacity of the water quality lab, and a determination of how the capacity of the lab could be expanded to meet the prioritized needs. The product of this phase was the drafting of a strategic plan for further development of the community-based water quality lab.

Accomplishments to Date: All work on the water quality laboratory was finished by summer 2004. It is a fully functioning water quality laboratory with a Technicon Auto Analyzer II.

Cook Inlet Keeper's staff planned, prepared and held a Laboratory Open House and Dedication Ceremony on July 22. The Laboratory was dedicated to the volunteer water quality monitor's of the Citizens' Environmental Monitoring Program by where a plaque was presented with the volunteer's names, donors, and in-kind supporters listed. The plaque reads: Cook Inlet Community-Based Laboratory, Dedicated July 22nd, 2004, "*In recognition of the countless volunteers who have collected the information needed to understand and protect our water resources*". The names will be updated annually. The mayor of the city of Homer presented a Mayor's Proclamation, proclaiming July 2nd 2004 as *The Cook Inlet Community-Based Water Quality Laboratory Grand Opening and Dedication Day*. A newspaper article in the July 26th 2004 Kenai Peninsula Clarion was published discussing the lab and its opening. Information on the laboratory is also available at <http://www.inletkeeper.org/2005/Lab/aLb.htm>.

In addition to completion of the water-quality laboratory, Keeper's Research Coordinator completed a draft laboratory profile. He also coordinated and attended a meeting held July 22nd at the Alaska Islands and Ocean Visitor Center involving laboratories in the Kachemak Bay and Lower Cook Inlet area. Participants included Cook Inlet Keeper, the Kachemak Bay National Estuarine Research Reserve, University of Alaska-Kachemak Bay Campus of the Kenai Peninsula College; Port Graham Hatchery, City of Homer Wastewater Treatment Facility, University of Alaska-Fairbanks/NOAA Kasitsna Bay Laboratory.

In August, Keeper's Research Coordinator gave a tour of the lab as part of the Native American Fish and Wildlife Society's weeklong water quality training held at the Kachemak Bay Research Reserve. Volunteer training for the water-quality laboratory has continued throughout the year.

Submitted Work Products:

Monthly and quarterly progress reports; Final report
Project Photos (next page)

Establishing a Community-Based Water Quality Laboratory Photos



Vinyl floor installed in September



Refrigerator and freezer for sample storage



Auto Analyzer waiting installation



Water purification system waiting installation



Fume hood waiting installation



Newly installed cabinets and counter tops

Projects Completed in 2003

COASTAL ACCESS IMPROVEMENT PROJECTS

- Gulkana River: Habitat Protection and Viewing Platform
- Little Susitna River Stream Bank Protection Platform
- Naknek River: Restoration & Enhancement of Frontage & Dock
- Sea Lion Cove Trail Reconstruction

LAND ACQUISITION PROJECTS

- Anchorage Coastal Wetlands Initiative

WASTE AND DEBRIS REMOVAL PROJECTS

- Pribilof Islands: Marine Debris Removal and Monitoring

Coastal Access Improvement Projects

- Gulkana River: Habitat Protection and Viewing Platform
- Little Susitna River Stream Bank Protection Platform
- Naknek River: Restoration & Enhancement of Frontage & Dock
- Sea Lion Cove Trail Reconstruction

Gulkana River: Habitat Protection and Viewing Platform

Type of Project:	Coastal Access Improvement
Grant Number:	2GA-98
Grant Encumbrance Number:	831397
Applicant Name:	Copper River Watershed Project
Project Status:	Closed Out
Estimated time to Completion:	Completed
Type of Access Improvement:	Elevated walkway and viewing platform along a heavily-traveled riverbank

Project Location: The project site is located at the Mile 190 turnout on the Richardson Highway along the Gulkana River. The closest city, Gulkana, is located on the east bank of the Gulkana (Kulkana) River at its confluence with the Copper River. It lies at mile 127 of the Richardson Highway, 14 miles north of Glennallen. Gulkana lies at approximately 62.27139° North Latitude and -145.38222° West Longitude. (Sec. 27, T006N, R001W, Copper River Meridian.).

Description and Purpose: The purpose of this project was the construction of a light-penetrating, elevated walkway and viewing platform at the Mile 190 turnout on the Richardson Highway where a multitude of people stop to watch salmon spawning in the Gulkana River. This would prevent further bank erosion and loss of vegetation from people climbing down to the water's edge.

Accomplishments to Date: The Copper River Watershed Project successfully completed this project, which included the construction of a 20' x 4' elevated walkway and a 12' x 12' viewing platform. All construction was conducted from the parking lot so that the riverbank was not disturbed. Concrete footings were poured and then the galvanized steel platform was assembled in place. The platform is attached to the parking lot guardrail to guide foot traffic to the platform and away from the river bank, thereby protecting the river bank salmon spawning habitat. A ribbon-cutting ceremony took place in spring 2004, when the interpretive signs are installed.

Submitted Work Products:

Plans for Fish Viewing Platform & Walkway Access Structure prepared by the Consulting Engineering Offices of Arthur H. Whitmer, PC.
Project photos (next page).

Gulkana River Habitat Protection and Viewing Platform Photos



Installation of the elevated walkway



Building the viewing platform



The brace at the outer pier



Completed elevated walkway and viewing platform



Installation of the guardrail



The completed project

Little Susitna River Stream Bank Protection Platform

Type of Project:	Coastal Access Improvement
Grant Number:	13GA-147
Applicant Name:	Alaska Department of Fish & Game, Sportfish Division
Grant Encumbrance Number:	830173
Project Status:	Closed Out
Estimated time to Completion:	Completed
Type of Access Improvement:	A light-penetrating ramp leading to an elevated light-penetrating grated steel ADA accessible fishing platform.

Project Location: The Little Susitna River begins from the Mint Glacier at Hatcher Pass in the Talkeetna Mountains and flows 113 river miles to empty into Cook Inlet. Wasilla, the closest City, is located at is located midway between the Matanuska and Susitna Valleys, on the George Parks Highway. It lies between Wasilla and Lucille Lakes, 43 miles north of Anchorage, about one hour's drive. It lies at approximately 61.58139° North Latitude and -149.43944° West Longitude. (Sec. 10, T017N, R001W, Seward Meridian.) Wasilla is located in the Palmer Recording District.

Description and Purpose: This project involved the construction of a short, light-penetrating ramp leading to an ADA-accessible fishing platform. An interpretive display posted in the vicinity of the platform educates users of the purpose and benefits of the restored site. The project site is within a state game refuge that receives high seasonal use by sport anglers, campers, boaters, and others. The fishing platform protects a portion of recently restored coastal riparian habitat along the Little Susitna River.

Accomplishments to Date: The Alaska Department of Fish and Game, Division of Sport Fish, successfully completed this project, which serves to protect and conserve a portion of coastal riparian habitat along the Little Susitna River that was the focus of riverbank restoration work. The project site is within a state game refuge and receives high seasonal use by sport anglers, campers, boaters, and others. The completed project includes a fishing platform with ADA-access, an interpretive display frame, and reseeded of the project site. Photos of the completed project are on the next page.

Submitted work products:
Monthly and quarterly reports
Project photos (next page)

Little Susitna River Stream Bank Protection Platform Photos



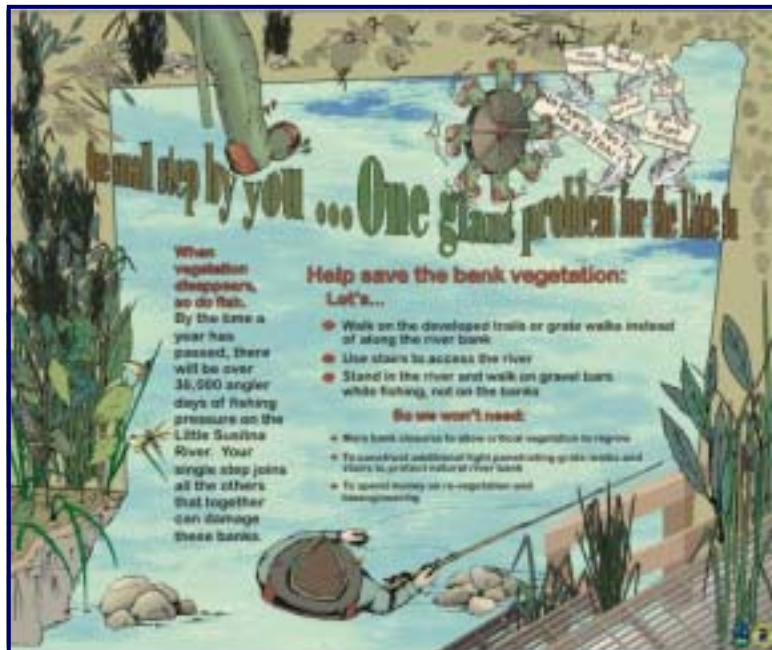
Grated metal stairs leading to the fishing platform



The elevated fishing platform



The fishing platform with interpretive display in foreground



The interpretive display posted at the project site

Naknek River: Restoration & Enhancement of Frontage & Dock

Type of Project: Coastal Access Improvement
Grant Number: 35GA-140
Applicant Name: Alaska Department of Fish and Game, Sportfish Division
Grant Encumbrance Number: 830183
Project Status: Closed Out
Estimated time to Completion: Completed
Type of Access Improvement: Replacement of retaining wall and dock along the Naknek River in King Salmon

Project Location: King Salmon is located on the north bank of the Naknek River on the Alaska Peninsula, about 15 miles upriver from Naknek. It is 284 miles southwest of Anchorage. It lies at approximately 58.68833° North Latitude and -156.66139° West Longitude. (Sec. 23, T017S, R045W, Seward Meridian.) King Salmon is located in the Kvichak Recording District.

Description and Purpose: The purpose of this project was to remove and replace an existing retaining wall and dock located on state property in King Salmon and to restore 250 feet of lost riparian habitat. The former retaining wall and dock were built with timbers and pilings pressure-treated with creosote, a known toxin that is no longer allowed. The timbers and pilings were deteriorating and ready to collapse into the Naknek River.

Accomplishments to Date: The Alaska Department of Fish and Game, Division of Commercial Fisheries, successfully carried out this project, which involved the removal of an old creosote bulkhead and retaining wall, and replacement with metal sheet pilings. Three dock pilings were installed and a contract for a new dock was awarded. Fill and seeding of the riverbank was completed.

Submitted Work Products:

Monthly and quarterly reports

King Salmon Waterfront Improvements Contract Documents and Specifications

Project photos

Naknek River: Restoration & Enhancement of Frontage & Dock Photos



The new aluminum gangway



View of gangway from landing float toward shore



(above) Aluminum gangway extending to the landing float



Sea Lion Cove Trail Reconstruction

Type of Project: Coastal Access Improvement
Grant Number: 17GA-54
Applicant Name: Sitka Trail Works, Inc.
Grant Encumbrance Number: 831395
Project Status: Closed Out
Estimated time to Completion: Completed
Type of Access Improvement: Reconstruction of Sea Lion Cove Trail

Project Location: Sea Lion Cove Trail is a two-mile trail lying within the Sea Lion Cove State Marine Park on North Kruzof Island in Southeast Alaska. Kruzof Island is located to the north west of Baranof Island fronting the Pacific Ocean, on Sitka Sound. It lies at approximately 57.10° North Latitude and - 135.42° West Longitude.

Description and Purpose: The purpose of this project was the reconstruction of approximately 9,000 feet of Sea Lion Cove Trail, concentrating primarily on the estuary and wetlands sections to provide permanent protection and conservation of estuaries and federally designated wetlands. Restoration of the trail prevented damage to fragile muskegs, assured access to the overnight cabin at Sea Lion Cove, and protected the spawning habitat of the Sea Lion Cove anadromous stream from degradation.

Accomplishments to Date: Sitka Trail Works, Inc. successfully restored the targeted portion of the trail. Restoration work included the development of 3,100 feet of gravel estuary trail, 2,700 linear feet of step-and-run boardwalk, 500 feet of refurbished trail tread, 3 log staircases, 40+ log steps, 23 stone steps, four new bridges, extensive drainage work, landscaping of disturbed area, and 50 feet of split puncheon. The Executive Director of Sitka Trail Works remarked that this project has given new life to an old trail, which has enabled many people to experience the exceptional beauty of the Sea Lion Cove area. Fish habitat has been improved with erosion control measures and remediation of damage to the estuary grass flats. The trail now provides a safe and pleasant hike to Sea Lion Cove.

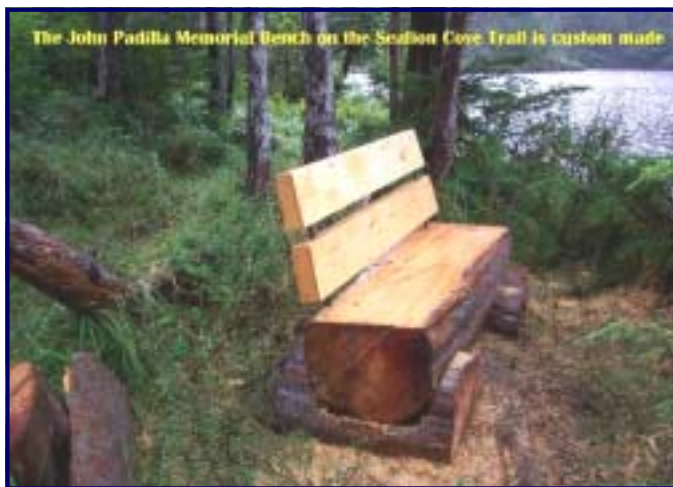
Submitted Work Products:

Monthly, quarterly and final progress reports
Photos of the project (next page).

Sea Lion Cove Trail Reconstruction Photos



After re-mossing the area around the steps on the Sea Lion Cove Trail



The John Padilla Memorial Bench on the Sea Lion Cove Trail is custom made



Newly constructed bridge on the Sea Lion Cove Trail

Land Acquisition Projects

- Anchorage Coastal Wetlands Initiative

Anchorage Coastal Wetlands Initiative

Type of Project: Land Acquisition
Grant Number: 25GA-83
Applicant Name: Great Land Trust, Inc.
Grant Encumbrance Number: 831432
Project Status: Closed Out
Estimated time to Completion: Completed
Acreage and type of land: 14 acres of forested wetland in the Fish Creek Watershed

Location of Land Acquired: This project is located in the Geneva Woods subdivision, legally described as Tract B-1A, Geneva Woods Subdivision, Lots 22 and 23, Block 1, and Lots 8, 9, 10, 12, 14, 15, and 18, Block 2, Kimberly Terrace Subdivision. The project is located in the Municipality of Anchorage. Anchorage is located in Southcentral Alaska at the head of Cook Inlet. It lies at approximately 61.21806° North Latitude and -149.90028° West Longitude. (Sec. 28, T013N, R004W, Seward Meridian.)

Information on ownership: The Municipality of Anchorage will hold the title to the land and Great Land Trust will keep the conservation easement.

Projected use of Land: The land had been conserved as a neighborhood recreation area newly renamed "The Helen Louise McDowell Sanctuary".

Description and Purpose: The Great Land Trust put \$25,000 of this grant award toward the acquisition of a high-priority wetland in the Geneva Woods neighborhood, and the remaining funds towards building a partnership for wetland conservation in Anchorage. The purpose of the "Pragmatic Partnership Effort" was to bring together public and private entities, along with financial players and wetlands experts, to coordinate proactive watershed based planning and conservation efforts. Assuming further funding can be raised, a 14-acre parcel near the headwaters of Fish Creek (Section 303(d) listed Tier II waterbody) would be purchased by the Municipality of Anchorage with a conservation easement held by Great Land Trust. The "Pragmatic Partnership" identified and prioritized strategic wetlands for conservation in three Anchorage watersheds, determine existing and new resources for conservation, and develop and pursue conservation strategies for the top priority parcels.

Accomplishments to Date: The Great Land Trust purchased this 14-acre tract of wetland on November 3, 2003. The purchase agreement, conservation easement, conservation easement documentation report and warranty deed were completed and filed and recorded with the Municipality of Anchorage.

Submitted Work Products:
Final report

Waste and Debris Removal Projects

- Pribilof Islands: Marine Debris Removal and Monitoring

Pribilof Islands: Marine Debris Removal and Monitoring

Type of Project: Waste and Debris Removal
Grant Number: 15GA-133
Applicant Name: Tribal Government of St. Paul
Grant Encumbrance Number: 831400
Project Status: Closed Out
Estimated time to Completion: Completed

Location of Project: This project took place on St. George and St Paul islands in the Pribilof archipelago. St. George is located on the northeast shore of St. George Island, the southern-most of five islands in the Pribilofs. It lies at approximately 56.6° North Latitude and -169.54167° West Longitude. (Sec. 29, T041S, R129W, Seward Meridian.) St. Paul is located on a narrow peninsula on the southern tip of St. Paul Island, the largest of the five Pribilof Islands. It lies 47 miles north of St. George Island, 240 miles north of the Aleutian Islands, 300 miles west of the Alaska mainland, and 750 air miles west of Anchorage. It lies at approximately 57.12222° North Latitude and -170.275° West Longitude. (Sec. 25, T035S, R132W, Seward Meridian.). Saint George and Saint Paul are located in the Aleutian Islands Recording District.

Type and amount of debris removed: Marine debris, including fishing nets and floats

Description and Purpose: The objective of this project was to clean up marine debris from critical fur seal habitat on St. Paul and St. George islands, and to monitor the deposition and persistence of marine debris at fur seal haulouts and rookeries on St. Paul Island. Marine debris was to be removed from four shoreline sites on St. Paul and three shoreline sites on St. George. Monitoring efforts would determine the persistence and accumulation of debris, as well as the source. A report detailing the clean-up and monitoring efforts was the final deliverable.

Accomplishments to Date: This project has been successfully completed. The Tribal Government of St. Paul purchased a four-wheeler, all-terrain vehicle trailer and spud bars to assist with clean-up efforts. Marine debris cleanup of fur seal rookeries and haulouts took place from April 28 to May 2, 2003. Marine debris was removed from eight locations. Three staff personnel from LGL Alaska Research Associates came to St. Paul to participate in the cleanup. Fifteen volunteers from several organizations helped with debris removal. Mapping was provided for the areas where the debris cleanup took place.

Submitted Work Products:

Monthly and quarterly reports
Project photos (next page)

Pribilof Island Marine Debris Removal and Monitoring Photos



Beach cleanup, including nets and driftwood



Hauling net



Driftwood cleanup



Loading debris into trucks



Gathered fishing floats



Loading debris in trailers